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ANAPHYLAXIS DUE TO POLLEN PROTEIN, WITH A REPORT OF THE RESULTS OF TREATMENT IN THE HAY-FEVER CLINIC OF THE NEW ORLEANS CHARITY HOSPITAL.

DR. WILLIAM SCHEPPEGRELL, New Orleans, La.

The invitation of your Society to present a paper on the subject of hay-fever at your annual meeting is appreciated not only for the reason that it indicates a growing interest in this disease, but also because it enables us to advance our efforts of placing the subject of hay-fever on a scientific basis.

While continuing to follow the line of investigation which we first placed before the medical profession in an article entitled "The Immunizing Treatment of Hay-fever" published in the *New York Medical Journal*, December 4, 1909, we have eliminated from the present report all but a practical working theory, so as to present within the limits of such a paper, the practical methods of investigating and treating this disease.

The important feature to be borne in mind in connection with hay-fever is that, for all practical purposes, hay-fever is always due to the inhalation of pollens, and that, of these, only the wind-borne pollens are responsible for the attacks. The simple recognition of this fact will eliminate many of the errors appearing even in our text-books, in which such insect-pollinated plants as roses,

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golden rods, honeysuckles, chrysanthemums, lilies of the valley, daisies and strawberry blossoms are placed in an etiological role to hay-fever.

Susceptibility to hay-fever has also been made the subject of innumerable discussions and mysticisms. Quite recently, a prominent physician, who suffered from hay-fever, visited our hay-fever clinic, and when it was suggested that he take the diagnostic test, stated that he was susceptible "only in the fall," thus confusing susceptibility with the exciting cause.

You probably all recall the much-quoted incident in which a hay-fever subject sneezed when an artificial rose was brought into the room, possibly because the investigator was smoking, and this coincident has been rehashed in numerous essays on the etiology of hay-fever as indicating the neurotic origin of this disease.

Another object in presenting this report is to counteract the professional pessimism regarding the treatment of hay-fever. Our analysis will indicate that the results of the scientific treatment of hay-fever already compares favorably with that of many other curable diseases. Its success, however, depends upon the application of correct principles, and not on the indiscriminate use of various preparations which are not only speculative in their effects, but which tend to discourage the rational treatment of this disease.

As an illustration of this, some weeks ago, a well-known laryngologist complained that he had obtained no benefit from the use of pollen extracts, and cited a recent case. On inquiry, we found that he had used a ragweed-pollen extract for the treatment of a hay-fever attack in May, in which the usual cause is the grass pollen, but never that of the ragweeds, which do not pollinate until August. He admitted that he was not aware that the kind of pollen extract made any difference, and was surprised to learn that, while he could not possibly benefit his patient by this treatment, he might even develop a latent allergy to the ragweed pollens.

With these introductory remarks, we will take up the subject which your chairman has selected for this occasion.

Anaphylaxis due to pollen proteins: The manifestation of anaphylaxis as applied to hay-fever is an important subject for consideration. On account of the large number of its victims, representing about one per cent of the population of the United States, the persistency of the disease and the distressing character of its symptoms and complications, hay-fever is one of the most serious of our non-fatal diseases.

Hay-fever is due to the absorption of the protein contents of inhaled pollens from anemophilous plants or trees, and the toxin-like substance liberated by the proteolytic action of the cells on the pollen protein.

There are also cases of spasmodic vasomotor disturbances, due to more or less easily avoidable causes, which do not ordinarily require consideration in connection with the subject of artificial immunity. This applies to the direct inhalation of certain flowers, such as the golden rod, daisies and dandelions, which is occasionally the cause of hay-fever especially among children; the emanations (dandruff protein, etc.) from horses, dogs and cats, which form but a small item in the number of hay-fever cases (less than one per cent in our records); and from the ingestion of certain articles of food which, in some persons, causes anaphylaxis of which hay-fever symptoms may form a part.

The prophylaxis in these cases is the avoidance of the special exposure which causes the anaphylactic symptoms. The development of an artificial desensitization, simply for the respiratory disturbances is rarely indicated.

All cells of the body possess, to some extent, a proteolytic power which acts as a defense against the invasion of foreign proteins, provided certain limits are not exceeded. The manner in which the liberated products are neutralized establishes the degree of susceptibility of the patient and forms an important factor in hay-fever allergy.

The pollens of hay-fever are atmospheric and are inhaled alike by all persons within their potential radius. In the majority of persons (99 per cent) the proteolytic enzymes digest the protein of the inhaled pollen so slowly that the products are absorbed without disturbing their normal functional equilibrium.

In the hay-fever subject, however, the entrance of the pollen proteins by parenteral channels is followed by such rapid digestion of the proteins that the products are not neutralized and act as a toxin. While the usual hay-fever symptoms are produced by the entrance of the pollens into the nasal passages of sensitive subjects, the proof that this reaction is not limited to the nasal mucosa is shown by the fact that a reaction may also be produced in these cases by applying the pollen, or its extracts, to the scarified skin. So constant is this relation between the skin and the nasal reactions, that the cutaneous or endermic test forms the standard method of establishing the diagnosis of hay-fever.

This relation is also shown by the fact that most hay-fever patients have some form of pruritus associated with their symptoms. In many cases the sensation is referred to the face, but in others to the scalp, neck or other portions of the body.

An additional proof that hay-fever is not dependent upon a local reaction is shown by the fact that asthma is a common manifestation of hay-fever, being present in 40 per cent of our recorded cases.

The distribution of the nerve branches from the sphenopalatine ganglion over the turbinals and its connection with the pneumogastric nerve is one of the principal causes of this frequency. That the asthma is not always a reflex from the nasal irritation, however, is proved by many cases of asthma, dependent upon pollen sensitization, in which the nasal symptoms are entirely absent, the diagnosis being based on the synchronicity of the attacks with the prevalence of the hay-fever pollens and the endermic protein test.

A noteworthy feature of hay-fever is the fact that 73 per cent of the cases do not develop the disease until after the age of 20 years. This has been demonstrated by the analysis of our clinical cases and by the questionaire of the United States Public Health Servcie on this subject in Louisiana.* As hay-fever is not an infectious disease and is not dependent upon any condition associated with maturity, this is an interesting fact for consideration.

Our investigations have shown that, while a certain degree of sensitiveness to the effects of pollen is probably congenital, the actual development of the disease is the result of an excessive amount of the pollen being inhaled and producing an anaphylactic condition which afterwards increases the patient's sensitiveness to these pollens.* This may be caused directly by a visit to a locality in which the atmospheric pollens, to which the patient is sensitive, are in greater abundance, resulting not only in an attack of hay-fever but in lowering the patient's resistance, so that he afterwards develops the symptoms in localities with a much smaller number of atmospheric pollens. Or it may result indirectly from some constitutional or nasal disturbance which lowers the normal resistance of the subject to pollen sensitization.

Treatment: With a view of determining the efficacy of pollen and vaccine therapy in hay-fever, a series of 312 cases were treated by pollen extracts, bacterial vaccines or the combination of these.

*Hay-fever in Louisiana. W. Scheppegrell, New Orleans Medical and Surgical Journal, October, 1916.

*Hay-fever and Hay-fever Pollens. W. Scheppegrell, Archives of Internal Medicine, June, 1917.

No other treatment was given and the diet was not restricted in these cases. The results were as follows: Seasonal cures, 45 per cent; marked improvement 42 per cent; unimproved or the treatment discontinued, 13 per cent. In the cured and improved cases, pollen extracts alone were used in 41 per cent, pollen extracts and bacterial vaccines in 54 per cent, and vaccines only in 5 per cent.

While the average results in these cases are satisfactory, we believe that the number of seasonal cures will be considerably larger when the advantages of the preventive treatment of hay-fever are better understood. In the majority of cases in this series, especially in the hay-fever clinic, the treatment was not begun until the hay-fever had actually developed, when the effects of pollen therapy are not as effective as its preventive treatment.

Diagnostic tests: In all cases, the diagnostic tests were made in order to determine the character and degree of the hay-fever reaction. This test consists in injecting into (not under) the skin of the forearm five units of the pollen to be tested. These are determined by the pollenometric records, the principal pollens during the spring being from the grasses and, in the Eastern, Northern and Southern States, from the ragweeds in the fall.*

Prophylactic treatment: After the character and degree of the sensitization has been determined, the preventive treatment is commenced by injecting five units of the extract of the pollen to which the patient is sensitive and to which he will be exposed. If he is sensitive, for instance, to the grass pollens, which are prevalent in the spring and early summer, this pollen extract is used for the spring treatment.

If the patient is sensitive to both grass and ragweed pollens, the preventive treatment for the grass pollens is commenced six weeks before the grass season opens, and for the ragweed pollens, the same length of time before the commencement of the ragweed season. We do not consider it advisable to use the combined pollens in these cases, on account of the great difference in the seasons of exposure, and the variation in the degree of sensitiveness to these pollens.

The pollen extracts for the preventive treatment are usually injected two or three times weekly and gradually increased to 30 to 50 units. Large doses are not given because our injections of medium doses have given better results, and also because large doses may produce severe reactions, not only of hay-fever and asthma but also of eczema, urticaria and angioneurotic edema.

*Hay-fever and its Prevention. W. Scheppegrell, United States Public Health Reports, July 21, 1916.

As soon as the specific pollen appears in the atmosphere, as shown by the pollenometric records, the injections should be reduced to 5 to 20 units, as the patient is now exposed to the atmospheric pollens.

Curative treatment: In the treatment of hay-fever, we have thus far used chiefly the pollen extracts. After the attacks have developed, however, better results were obtained from a combination of the pollen and vaccine therapies.

In some of these cases, autogenous vaccines were used, the cultures being obtained from the nasal secretions. While this is theoretically the better method of preparing the vaccines, it is difficult to select the material for the cultures without more or less contamination with adventitious micro-organisms. As it was also found difficult to obtain the autogenous vaccines for the hay-fever clinic, special stock vaccines were used in most of these cases.

The bacterial vaccines were used principally during acute exacerbations, when the severity of the symptoms indicated the probability of bacterial invasion aggravating the effects of the inhaled pollens. The initial dose in these cases was 0.50 c. c. and afterwards 1.00 c. c., usually at intervals of two days for three or four doses. We use three forms of vaccines, each containing to the c. c. 1,000 millions in various proportions of the following micro-organisms: *B. Friedlander, M. Catarrhalis, Pneumococcus, Streptococcus pyogenes, Staphylococcus aureus* and *albus*. As soon as the acute attack has subsided, the extract of the pollen, which has been determined to be responsible for the patient's hay-fever, is injected, the dose being 5 to 20 units, which is used at intervals of two to five days.

The exact dose is determined by the reaction in the diagnostic test, careful records of which are kept for each patient. When the reaction has been marked, small doses (5 to 10 units) are used, while in other cases this is increased to 10 to 20 units.

Should an acute attack again develop, the bacterial vaccine is substituted for the pollen extract, from one to four injections being made. In many cases, one injection is sufficient to control the symptoms.

In all cases, the treatment is discontinued when the pollenometric records show that the atmospheric pollens, responsible for the attack, have disappeared. Before this time, however, the treatment is discontinued when the report of the patient indicates the control of the hay-fever. At first the treatments are made at longer intervals and then discontinued.

Patients are notified to report the following season for the diagnostic test. The reaction from this decides whether the patient is still immune or will require another course of treatment.

In spite of the large number of injections, there have been no cases of infection nor of anaphylactic shock. Tincture of iodine is applied to the skin before and after each injection, except for the diagnostic test, when alcohol is applied first and iodine after the test has been completed.

No restrictions were made regarding the diet, except in one case in which the symptoms were aggravated by eating peaches or watermelons. Except in this series, we instruct patients to maintain a diet low in proteins, and to refrain from articles known to cause anaphylactic disturbances, such as fish, crabs, shrimps, strawberries, etc.

Hygienic measures: Hygienic measures for the control of hay-fever are as important as in typhoid fever, malaria, yellow fever and other preventable diseases. In all cases except in Series C in which the test was limited to the use of pollen extracts and bacterial vaccines, patients are given charts of nine blocks in their neighborhood, with instructions to locate lots that are infected with weeds. When this is the case, the charts are sent to the City Board of Health, which notifies the owners to cut the weeds under penalty of an affidavit for violating the grass-weeds ordinance. The difficulties of immunizing a patient who lives in a weed-infected neighborhood are greatly increased, and frequently necessitates the raising of his immunity to 85 per cent when ordinarily 70 per cent would be sufficient.

In order to demonstrate the efficacy of such measures, the American Hay-fever Prevention Association in 1916 employed special inspectors to co-operate with the regular force of the New Orleans Board of Health, with the result that the number of spring hay-fever cases of that year was reduced to less than 50 per cent. As the fall hay-fever in Louisiana is due to the ragweeds (Ambrosias) whose potential radius* is ten times greater than that of the grasses which cause the spring hay-fever, the benefit was much less marked as the pollens blew in from the surrounding country.

As the special object of this report is to show the effects of pollen and vaccine therapies, no reference has been made to other measures. Operations for septal deformities and other non-inflammatory obstructions are of benefit in hay-fever in only a small

*Hay-fever and Hay-fever Pollens. W. Scheppegrell, Archives of Internal Medicine, June, 1917.

percentage of cases, and are rarely advisable unless indicated for other reasons. Cauterizations have caused more harm than benefit. Purulent infections of the accessory sinuses are rarely met with in our cases of hay-fever, but should be corrected when present. Serum therapy offers possibilities in cases that do not respond to the pollen and vaccine treatments, and the work in this line of investigations will be continued. The general health should not be overlooked. A urinalysis should be made in every case, and when there is acidosis or other abnormal condition, the usual measure applied.

With the proper attention to the general principles outlined in this report, and a careful analysis of each case, the results of the treatment of hay-fever should become so effective that the medical profession as well as the public will soon cease to relegate it to the list of incurable diseases.

Audubon Building.

Fusiform Dilatation of the Esophagus Coated with Odium Albicans, and Apparently Idiopathic. ST. CLAIR THOMSON, *Proc. Royal Soc. Med.*, Sec. Laryngol., Jan., 1918.

The patient was a girl of 15 whose symptoms started one year before coming under observation with violent fits of coughing and regurgitation of food. She had no difficulty in swallowing. An esophageal pouch was suspected. The condition varied; for 14 days she would have no or little difficulty in retaining food and then for days she might be unable to do so as regurgitation followed on every effort to swallow. Plate examination showed a definite constriction at the cardiac end of the esophagus with considerable dilatation above the obstruction, and some irregularity in the shadow about the middle of the esophagus. Esophagoscopy showed an evenly and widely dilated, fusiform gullet, irregularly coated with plaques of a dirty white material which, on removal, proved to be oidium albicans together with other bacteria. No pus, blood or growth. Wassermann reaction not recorded. ED.

THE MUNICIPAL CONTROL OF DIPHTHERIA.*

DR. CLARENCE W. SCHAEFFER, Philadelphia.

The municipal control of diphtheria is one of the most interesting, but still most difficult, problems that a health officer must combat. The deeper one delves into the statistics of the disease the closer the solution seems, but is still somewhat in the distance, and one keeps on striving but does not attain. Our knowledge of diphtheria is most satisfactory. We know the cause of the disease; its methods of transmission. We possess its specific preventative and its specific curative agency of great reliability. Diphtheria spreads by direct contact from person to person. I think health officers are rather firmly convinced that fomites count for only a very small percentage of the transmitted cases. "The disease is endemic in all centers of population and seems to increase its prevalence in cycles, there being three or four years of increased prevalence, followed by a longer period of moderate morbidity."

Now, as I said before, we know the cause of the disease; we know its modes of transmission; we have a specific preventative and curative agency; why then have we not stamped out diphtheria? Many factors enter into the spread of diphtheria and a study of the health statistics of Philadelphia for the last three years has shown some very significant facts as to the spread of the disease. I will discuss these under six headings:

1. The source of contagion and modes of transmission.
2. Age susceptibility.
3. The day of illness on which the case is reported to the health department.
4. The promptitude in which the physician reports the case.
5. Mild cases of diphtheria and bacillus carriers.
6. Isolation and nursing.

1. *Source of contagion.* During 1917, 3,141 cases of diphtheria were reported and the source of contagion was firmly established in 35 per cent of the total cases as compared to 31 per cent of the total cases in 1916, and 27 per cent in 1915. While these figures seem small, one would naturally expect a source of contagion to be traced in more than 35 per cent of the cases. It must be borne in mind that there are many difficulties in definitely tracing the

*Read before the Philadelphia Laryngological Society, March 6, 1918.

sources of contagion, and it is only by the closest application and questioning that our inspector finds out significant facts. This is due to a desire of the public to shield their friends and neighbors from what they consider "annoyance" by the health department, and consequently do not give the information necessary or even tell the truths.

The largest single factor in the source of contagion is "secondary cases in the house." These are due usually to preventable causes, the principal ones being improper isolation and the lack of immunization. During 1917, 315 cases of diphtheria were secondary cases in houses. Schools, also, play the part of the carrying of the disease, owing to the close association of children of the susceptible age. During the last year 197 children were directly infected in the school-room. Cases traced directly to other cases in the neighborhood, or among neighbors and friends, numbered 193. Cases traced to mild diphtheria, not previously recognized as diphtheria, but which gave positive cultures, 92. Here we have an important mode of transmission of diphtheria and it will be discussed later under a separate heading. Ninety-two cases, during 1917, were definitely traced to another person in the family who had had sore throat not recognized as diphtheria, which though very mild in character, showed a positive diphtheria culture, many of which were virulent and killed pigs.

2. *Age susceptibility.* In order to determine the most susceptible age in children from the point of logical health administration the cases can be placed roughly in three classes:

1. Those under school age.
2. Those of attending school age.
3. Those over school age or adults.

1. Those under school age, i. e., from 1 to 6 years, number 59 per cent of the total cases.

2. Those attending school form 34 per cent.

3. Those over school age or adults number only 7 per cent of the total cases.

These figures change in various years, but are often a rather good index of the virulence of the infection, and it is known that adults naturally possess a greater degree of immunity than children. When the percentage of the adults is increased, especially in those over 30 years of age, one would consider that either the virulence of the germ was increased or the resistance of the patient much lowered. During 1917 there was an increase of 2 per cent in the adults suffering with diphtheria, being 9 per cent for 1917.

We can see by these figures, which represent averages for about four years, that children under school age are 20 per cent more susceptible than those attending school. While there is no doubt that there is an increased susceptibility to diphtheria among younger children it seems quite possible that it would be greatly diminished if the same conditions of careful medical supervision were extended to this group, that exists for our babies' welfare and for the public school children. Many cases of neglect occur in this uncertain period of life where the children are too old to be called babies and too young to be school children. When the health centers get well organized we sincerely hope that they will include these children of the uncared-for age as part of their work and help us to keep down diphtheria in this important group.

3. *The day of illness on which the case is reported.* An early report of the case of diphtheria to the health department means earlier disposal of this case as a spreader of infection. We consider that every day lost between the day of onset of illness and the day the case is reported to the health department is a day of unnecessary exposure to numbers of susceptible people, because among the lower middle and lower classes, which form the great bulk of our population, little or no attempt of isolation is practised before the health department steps in. The busy doctor, interested primarily in the patient's recovery, and often thinking only of it, frequently forgets to impress upon his patient's mind the necessity of immediate and close isolation. Ofttimes, friends are frequently admitted to the infected house, coming in direct contact with the sick patient, only to spread the disease to members of their own family. It is during these days that most of this damage is done. This can be obviated only by campaign of education of the laymen with the better understanding of health matters by our citizens. There should be an earlier summoning of the physician for illnesses among children, especially colds and sore throats.

We have been greatly gratified by a much larger percentage of earlier reports during 1917 than during the two previous years. During 1917 only one day elapsed between the day of onset and the day of report in 24 per cent of the cases, i. e., 24 per cent were reported on the second day of the disease as compared to 5.32 per cent reported on the second day during 1916. This is distinct progress. In fact, 97 per cent of our cases during 1917 were reported during the first five days of the disease, which is a distinct forward step over the previous years.

4. *The promptitude of the physician* means much to the health

department and it is right here that I would like to do a little missionary work. Doctors are rather apt to be forgetful and carry the post-cards around in their pockets before dropping them into the box, to report a contagious disease.

It is the desire of the department of health to have the physicians co-operate with them and the doctor will always be given prompt courtesy and attention by the health department. While one considers the rapidity and progress, the ease of diagnosis, and the short duration of the disease, it seems that many cases could be reported earlier, and many foci of infection closed up.

5. *Mild cases and bacillus carriers* play a large role in the spreading of the infection. The diphtheria bacillus is frail and soon dies when exposed to sunlight and is, therefore, air-born only within the radius of a drop of excretion, sneezed or coughed from the nose or throat, a distance of a few feet. But the turgescent moist surface of the mucous membrane covering the turbinate bones in the nose and the deep crypts of the swollen infected tonsils in the throat form ideal foci for the harboring of diphtheria germs, although the resistance of the host is such that they do not contract the disease. These form the group known as bacillus carriers.

Many investigators have found that the number of bacillus carriers is higher in members of a family which have been exposed to the disease than in the average family and the percentage is still higher in families where no isolation is practiced than in those where proper precautions were taken. "In families, where a case of diphtheria exists, ofttimes 50 to 60 per cent give positive cultures; in hospital wards and institutions, 14 per cent; in schools, 8 to 10 per cent are found to be bacillus carriers." The average ratio of bacillus carriers in our general health population is about 1 per cent. I am personally of the belief that many positive cultures are really due to mild, unrecognized cases of diphtheria. For the past three years our medical inspectors were instructed to carefully investigate the existence of previous sore throats or discharging noses among the families and contacts of diphtheria patients. There were 94 cases during the year 1917, giving a history of a slight sore throat or slight discharging nose in which a positive diphtheria culture was obtained upon bacteriological examination. Undoubtedly, mild cases of diphtheria, which caused secondary cases in their own households have also probably caused many cases in their unimpeded contact with our population at large. During the past three years every discernible contact with a case of diphtheria

was cultured and many carriers found, isolated and excluded from school or work until all danger of transmission of the disease was eliminated. During 1917 alone, 23,476 cultures were taken by our medical inspectors in doing their work. If we could isolate every positive culture until it becomes negative diphtheria would be removed from the category of the communicable diseases, but this is impossible on account of their large number and their wide-spreading distribution. Our laboratory co-workers tell us that there is no easy way to differentiate virulent from non-virulent organisms except by the pig test. As many harmless bacteria have the same morphological appearance as the virulent germs, the value of even attempting to isolate all carriers in a community is absolutely impossible. But I do think these small outbreaks of diphtheria in institutions, schools and hospitals where people are apt to be crowded together, the control of the epidemic depends eventually upon the recognition of carriers and their isolation.

6. *Isolation and nursing.* The best isolation the bureau of health can hope for is the removal of every case to contagious hospitals and that we are gradually approaching to this goal is shown by the fact that each year shows an increasing proportion of our cases going to the hospital and during 1916 reached the enviable figures of 71½ per cent. After a case reaches our hospital all danger of contact to the community is naturally removed. Of the cases removed to the Philadelphia Hospital for Contagious Diseases, in 71 per cent there was little or no attempt at isolation previous to the admission to the hospital; 12 per cent were fairly well isolated, isolation being considered fair when a relative or friend did the nursing, while another person did the housework, and in 5 per cent only could the isolation be considered good, a trained nurse being in attendance and all preventative methods being used. Of the cases remaining at home 59 per cent were poorly isolated, 35 per cent where the isolation was considered fair and in 5 per cent the isolation was considered very good. This is a much better record than pertained during previous years. The department of health is rapidly approaching the time when it will not permit the retention of a child at home suffering with diphtheria where fair conditions of isolation are not practised. The department of health, at the present time, unfortunately, has no legal power, except in very dire circumstances, to force patients into the hospital and must therefore depend on police quarantine, and police are not always available for quarantine duty.

With all these efforts during the last year diphtheria was increased by 642 cases, which is the largest number reported since 1911. The deaths numbered 441, giving a death rate of 14 per cent. The morbidity rate per 100,000 in 1917 was 181, while during 1916 it was 146. The mortality rate per 100,000 was 25.4, as compared to 22.6 during 1916.

So it is noticed that the morbidity rate, the mortality rate per 100,000 and the actual number of cases all showed a decided increase over the previous year. This condition is not peculiar to Philadelphia, as the disease has been more prevalent throughout the country. The increase is undoubtedly due to war conditions and was anticipated. A direct appeal was made by Director Krusen in a letter to the medical profession, urging them to co-operate with the department of health and keep the diphtheria rate as low as possible.

Living conditions have been harder each week. The cost of food has mounted to almost unattainable heights. Milk and eggs are almost out of reach among the poorer classes. The children admitted to our hospitals show the results of ill-practised economy and are not nearly so well nourished as even a year ago. This makes them less resistant and their immunity to the disease is curtailed. This is shown by the increase of secondary cases in families. During 1917 there were 315, as compared to 226 during 1916. While the disease has been more virulent I feel that it is rather that our diphtheria-taking population, owing to the hard conditions under which they have been living has been less resistant and has been more susceptible to the disease than a marked increase in the virulence of the bacillus.

To sum up, the control of diphtheria in a city or large community means a continual study of various factors entering into the spread of the disease, a quick recognition of local outbreaks of the disease and firm measures used to prevent a general epidemic, education of the population to the necessity of paying strict attention to health matters as taught them by the various circulars of information sent out by the department of health, close co-operation between the family doctor, the medical inspector, the epidemiologist, the chief medical inspector, the diagnostician, the bureau of health, the director of the department of public health and charities and paying strict attention from the smallest details in the individual case to the important matter of policy in health administration.

117 South 20th Street.

INTUBATION FOR ANGIOMA OF THE LARYNX IN A CHILD TEN WEEKS OLD.

Dr. John J. Levbarg, New York.

The reason I report this condition is, that it is extremely rare but few cases having been reported in laryngological literature. The pathology of this disease is essentially the same as in angioma of the face or neck. This case is also interesting because the child's life was saved by intubation,—a very dangerous procedure in such a condition. Any scratch or laceration of the tumor was liable to bring on a fatal hemorrhage. Tracheotomy was also considered but, due to the fear of a fatal result from an incision into the tumor, intubation was resorted to.

Case report.—Baby boy, 10 weeks old, brought to the Beth David Hospital for severe dyspnea and stridor. The child's parents were Russians, in good health; no consanguineous marriage. They have one other child, 8 years old, in good health. Labor in this case was thirty hours' duration and very difficult. Child's upper left extremity is paralyzed since birth. On birth the child had a small angiomatous spot the size of a fifty cent piece on the left temporal region, some scattered pinkish spots on the hard palate, uvula and neck. This pinkish growth, as they called it, spread gradually every day.

Two days after the child was brought to the hospital—(July 4)—I was called in to see it on account of severe dyspnea. On inspection you could see that the child was struggling for air and on closer examination there was marked retraction of the supraclavicular space and upper part of abdomen, and severe cyanosis. An examination of the larynx by direct laryngoscopy made by Dr. O. Glogau revealed that the tumor was spreading downward. On palpation a soft and compressible tumor was felt.

At 12 A. M., it was decided that intubation be tried as a last resort. Inasmuch as the child was only 10 weeks old, I tried a half-year tube under aseptic precautions. After intubation the dyspnea was not relieved immediately as you would obtain in true croup, but it gradually diminished. In about one-half hour the child was quiet and fell asleep. A strong X-ray treatment was given that same day.

July 5, 11 A. M. Extubated tube—as I was afraid too much pressure may cause an ulceration and thereby cause a hemorrhage. Without the tube the child continued to have difficult breathing and it was necessary for me to reintubate at 12 o'clock that morning.

3 P. M. Child coughed up tube.

5:30 P. M. Reintubated.

July 6, 9 A. M. Called to hospital on account of the child having very difficult breathing and being severely cyanotic. Extubated and reintubated with a *one*-year tube, because the angioma was spreading downward.

2 P. M. Child quiet and breathing easily.

8 P. M. Child vomited a good deal of mucus with the tube.

9 P. M. Reintubated one year tube.

9:15 P. M. Tube blocked up with mucus. In angioma, especially of the larynx or oral cavity, there is an increased secretion of mucus.

9:30 P. M. Reintubated.

July 7. Extubated on account of mucus; 12 A. M., intubated.

July 8, 10 A. M. Extubated and allowed child to rest without tube four hours. Intubated 2 P. M.

July 9, 4 A. M. Child coughed up tube and was without same until 11 A. M. When I visited the child, he was quiet—on expiration there was a slight whistling and bubbling character to the breathing—but no stridor present. Did not intubate this day.

July 10, 9 A. M. Slight stridor present—child nourishes well,—intubated one year tube as child was slightly cyanosed.

July 11. Extubated 2 P. M. Child quiet and playful, takes food readily.

July 12. Child doing well without the tube. On examination, angioma of the neck was decreasing and becoming smaller every day. Did not intubate again and for two weeks child was improving every day. On palpation the tumor in larynx was greatly diminished in size.

July 26. Child very much improved and was allowed to be taken home, and I have since heard that the child is well and gaining in health, and that he has no difficulty in breathing. The angioma is still present but diminishing in size.

1425 Madison Avenue.

THE TRAINING OF THE SPEECH INSTRUCTOR.

Dr. Walter B. Swift, Boston, Mass.

In these days, when speech instruction is spreading so rapidly through the schools of the country, one receives increasingly frequent inquiries from those who wish to enter the field, asking how they may best fit themselves for the work. So much depends upon the training of the pioneer teachers in this subject, the success of the entire movement is to be so deeply affected by the nature of their preparation, that these inquiries should be answred with all possible wisdom and precision.

Generally speaking, the answer one makes must be determined by the plans of the applicant. If the person asking advice wishes merely to acquire that minimum of information which fits one to do corrective work in the public schools and in connection with grade work, the answer is simple enough. If he wishes, on the other hand, to become a speech expert, a final authority, a teacher of teachers, a vastly different answer must be made. In this, as in all other things, we have to cut our patterns to fit the cloth that life gives us. It is simply folly to expect of the grade school teacher, limited as she is in time and strength and financial means, the same or anything like the same exhaustive and protracted training that we may rightly demand of those who intend to set themselves up as experts. Nothing but mischief can come of such an expectation. Grade school teachers will be discouraged at the very outset and will do nothing, thus jeopardizing the success of the whole speech improvement program. It should be made clear to them that they may begin in this work with very little initial expense and study, and that the later steps of their progress will be made easy for them when they get to them.

There has been much perfectly sound and sensible talk and writing about the complexity, the difficulty, of the science of speech. No one can deny that the science is complex and difficult. Few sciences are more so. The comforting consideration that the speech teacher in the public schools does not have to know the entire subject in its minute details has not been made at all times sufficiently clear. Those responsible for the training of these teachers must, indeed, know the whole body of related sciences and arts that have to do with speech, but the teacher whose whole concern

is with practice, may take the greater part of this on trust. She need not, for example, know medicine, for she has at hand in all her speech work, a medical specialist who is paid to advise her and whose findings she may trust. She need not be an expert in psychiatry, for she can at all times refer suspicious cases to an alienist who will tell her with authority whether, in any given case, she is dealing with a normal or with an abnormal mentality. The sum of this whole matter is that the speech expert deals with theory; the speech teacher, in the public schools, is concerned with practice. Theory is always much wider than practice because it deals with all possible cases, whereas practice deals with specific and individual cases alone.

In outlining the training that fits one for the role of speech expert, one is justified, then, in requiring a preparation both very broad and very deep. Our national tendency to demand quick results must here be strongly combatted. There are about eight departments of learning in which the true speech expert must show himself something of a master, and he must have spent upon each of these an amount of time which is, of course, variable with the individual, sufficient to give him mastery in it. He must, in the first place, be a master of general medicine, because so many speech problems are to be solved only by medical diagnosis and because he must be able to see speech phenomena in their physical setting. He must have made a special and protracted study of the special fields of medical science known as laryngology, neurology, and psychiatry. The first of these gives him the necessary close anatomical knowledge of speech organs; the second gives him the necessary knowledge of the nervous control of speech, and the third enables him to isolate for special treatment the insane and feeble-minded, at the same time that it suggests the proper methods of such treatment. A fairly full and close knowledge of dramatic art or vocal expression is necessary in order that he may have a sense of the possible beauty and refinement of artistic and finished speech. Psychology also, both the general and academic sort taught in American universities, and the personal or individual sort which is to be learned only in the close study of actual men and women, is essential to his success. Finally, he must have had training in laboratory methods and scientific procedure.

Obviously, this is a program which requires half a lifetime and which few men in any one generation will give themselves up to. Only a few such past-masters are needed in any one generation. It has seemed worth while to outline this course of preparation, not

because it seems likely that anyone who reads this paper will care to follow it, but because it enables those who are looking for instruction to select their masters intelligently. Only those who have had a training approximating that outlined above are fitted to instruct the teachers who are to be responsible for the speech instruction given in our public schools.

But now, passing to the case of the public school teacher who wants to take up speech work in connection with her other teaching, a very different situation confronts us. She may begin with very little instruction, with little knowledge, little expense and little expenditure of time. To take a very extreme and improbable case, she might take a lecture or two on the nature and the cure of lisping and then apply what she has learned in the correction of that fault among her own pupils. But this, of course, is scarcely a beginning, and scarcely worth mentioning except as it shows how easy it is to begin.

The field of speech correction is naturally divided into three subdivisions: stuttering, phonetics, the treatment of mental defectives. The practical or treatment phases of at least one of these should be fairly well mastered before one begins work in the schools. This mastery of corrective technic may be attained by attending a course of lectures which meets for one hour three days a week for one month and by attending the clinic which is conducted in connection with this course. Thus, one may get both theory and practice, together with expert guidance in the actual working out of speech problems. This is precisely what the beginning teacher must have: didactic instruction; observation of expert application of those instructions; actual experience, under guidance, in the application of that instruction.

This single month of training not only seems to be but actually is, of course, a very slight basis for real educational work in the schools. The fact is that one masters this subject, like any other, rather by practice than by theory. Any lectures that anyone could give on methods of speech correction would be little more than introductions to the real field, which is a field of practice. Perhaps about one-fourth of the preparation is got from lectures, one-fourth from observation in the clinic, one-fourth from practice in the clinic. The rest must be learned from independent effort on the student's own part.

This leaves out of account the whole important and fascinating matter of the background of speech phenomena. Sooner or later,

the well-equipped teacher must master that psychological background. Without it, one's treatment of speech defects is bound to remain narrow, empirical, and unsatisfactory. It is impossible to diagnose a case of speech defect without a fair knowledge of the sensory and psychological organisms controlling speech. Gradually, too, the teacher must make herself more and more sensitive to subtle differences and nuances of vocal expression. She must be more than a narrow practitioner; she must become in some degree both scientist and artist. But all of these will follow in good time. The point I am now making is that it is easy to begin, and that there will be adequate guidance over all the way for those who wish to avail themselves of it. Anyone can begin this work at once, and begin by easy stages. The road leads wide and far, indeed, but that is no reason for not setting out upon it at once if one feels that he has the call.

110 Bay State Road.

OSTEO-SCLEROSIS OF THE TEMPORAL BONE IN CHRONIC SUPPURATION.*

DR. H. B. GRAHAM, San Francisco, Calif.

Dr. Cheatle of London, in 1907, after sectioning about 500 normal temporal bones, found about ninety-six which presented a so-called osteo-sclerosis of the mastoid process. He found this in ears which had evidently not had a suppurative process at any time. He came to the conclusion that this was an embryological condition of the mastoid process. In the embryo the antral wall is very definite and very thick. The mastoid process has its origin later than the antrum and ring. The wall of the antrum is thick and seemingly in many mastoids becomes thinner as the diploe of the mastoid develop. Inside the antrum are a number of cells, or deep recesses, which he calls the embryological type of cells.

*Read before the Western Section of the American Laryngological, Rhinological and Otological Society, at Los Angeles, Calif., Feb. 21, 1918.

In 96 of the 500 mastoids which he sectioned he found that there was a varying degree of osteo-sclerosis, as it had been formerly called, beginning at the antrum and extending into the mastoid for various distances. In many it extended clear to the tip of the mastoid. He found this present on both sides of the head and

Showing osteosclerosis of temporal bone.

came to the conclusion that this sclerosis of the mastoid was not due to bacteria but rather an anatomical peculiarity which could easily contribute to the chronicity in suppurative ears instead of being caused by the presence of bacteria. He said that in a large number of cases in his practice he had had to chisel through a

large amount of this osteo-sclerotic bone. He further said that this was normal bone and should not be known as osteo-sclerotic bone as proved by microscopical section.

The question is, was he right in assuming that a true osteo-sclerosis did not occur in chronic suppurative processes in the temporal bone. I here present a number of x-ray plates which show a condition which would lead us to believe that he is wrong. There may be this type of infantile bone; there may be normally in many individuals a solid mastoid. Dr. Cheatle has without doubt shown this, but where we have a chronic suppurative ear we may have a true osteo-sclerosis which is the result and not the cause of the suppuration. Dr. Cheatle has not proved his case that the converse occurs at all. If he were right the x-ray pictures of cases showing chronic suppurative processes would show this thickening of the antral border and mastoid process on both sides. In my experience this has not been the case. In no case of chronic unilateral suppuration has the opposite side shown any evidence of embryological sclerosis and in all cases of long standing there has been a definite thickening of the mastoid process on the diseased side, in one case being so extensive that it included the petrous portion of the temporal bone forming a very effective barrier against the infection. In all cases the sclerosis was confirmed by operation.

Technic for procuring x-rays of the mastoid: Three methods may be employed in procuring pictures of the temporal bone or its parts.

First, each mastoid may be taken separately, stereoscopically or singly, by placing the head on the side and focusing through the head at the opposite side.

Secondly, each mastoid tip may be projected onto a small plate placed behind the mastoid, the tube being in front on the same side.

Thirdly, an anterior posterior stereoscopic or single picture may be taken of the whole head, with special reference to the petrous bone. We consider this method of stereoscopic views to be the best as the plates may be studied without moving them from the frame, so that the eyes may be cast from one side to the other for comparative purposes; the pictures are just as clear as by the other methods, it is just as cheap and one has the nasal sinuses to study in case that is indicated. These are the only pictures which give a good view of the apex of the petrous portion.

240 Stockton Street.

OUTLINES OF A NEW INSTRUMENT TO BE USED IN SKIN GRAFTING IN THE RADICAL MASTOID CAVITY.

DR. ALFRED KAHN, New York.

Have you ever been an eye witness where a surgeon is attempting to place a skin graft in a radical mastoid cavity? Have you ever noticed the extreme difficulty and the patience required to place the graft exactly in position? With the idea in mind of simplifying this proceedure I have devised an instrument wherewith the graft can be lifted up and put in place with comparative ease.

Outlines of instrument: The technique requires two instruments. The first is a thin plate of glass or metal one and a half by three inches (figure 1). This plate has an opening through its center and notches on one side of the plate making a keyhole shaped open-

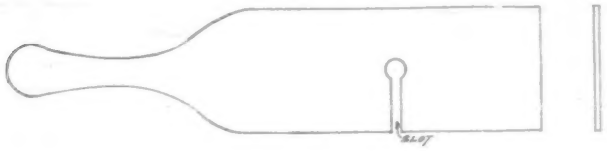

FIG 1

ing. One end of the plate can be extended into a handle for easy manipulation. The other instrument (figure 2) consists of a rod gradually apically shaped at one end. At the other end a handle is attached, placed at an angle for easy manipulation and with the idea of not obstructing the view. The rod is grooved from apex to base by four gutters an equal distance apart. The rod is six inches long. Three inches from the apex the rod is notched to fit slot in plate as shown in figures. The idea of this notching will be apparent as I proceed further in my description.

The apex (figure 2) is roughened by extremely minute projections. The projection immediately at the highest point of the apex extends somewhat higher than the other projections.

Technique: The skin graft is cut from the thigh or other part of the body in the usual way. It is implaced upon the notched

plate, the center of the graft covering the round hole in the plate. The plate is then held in the left hand and the grooved rod with its apex pointing upward in the right. The plate is then passed down over the rod, the rod going through the round hole in the plate. In this way the graft is lifted from the plate and hugs the rod. The graft now hugging the rod is carried directly into the radical cavity at exactly the point required, all in one movement. The rod is held in place and by means of a long needle or "teaser" alternately passed along the grooves on the rod, holding the rod firmly in place, the graft is spread out over the cavity. The rod is then given a sharp sudden pull—the procedure is fin-

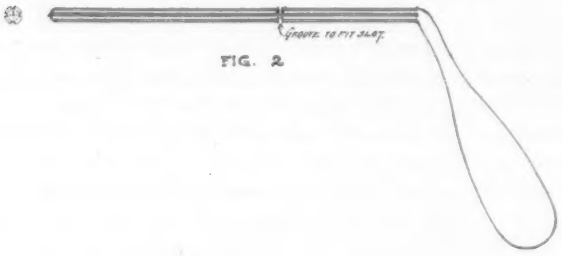

FIG. 2.

ished. The central prong on the apex is the last spot to leave the graft, the other projections being much shorter, and owing to the shape of the apex they leave the graft before the highest prong at the center. Thereby, when the rod is suddenly pulled away, the graft is not disturbed. The rod is flattened three inches down from its apex in order to release itself from the keyhole like opening in the plate.

By means of this instrument a graft can be placed through the external auditory canal after the posterior radical incision is closed.

50 East 42nd Street.

SOCIETY PROCEEDINGS

THE NEW YORK ACADEMY OF MEDICINE

SECTION ON LARYNGOLOGY AND RHINOLOGY.

March 27, 1918.

Intravenous Injections of Sodium Iodide in Massive Doses in Obstinate Laryngeal Syphilis. Presentation of patient and report of an intractable case of laryngeal syphilis, receiving 125 massive doses of sodium iodide, 54 salvarsan and many hundred mercury injections. DR. ROBERT C. HOWARD.

DR. HOWARD presented before the section on Rhinology and Laryngology of the New York Academy of Medicine, March 27, 1918, a patient with laryngeal syphilis of seven years duration and whose condition had proved very resistant to intensive treatment with full doses of salvarsan, mercury injections, potassium iodide and other well known forms of antisyphilitic treatment. Dr. Howard's pioneer work with sodium iodide was mainly based on this case, although he had used iodide intravenously in five other non-syphilic cases, giving 32 injections with excellent results in several and no harmful results in any.

The literature on the subject was found by him very meagre, but he was impressed with the striking similarity in methods, observations and results, in his own work and that of others in this line.

The patent a robust man of 29 years, a hospital orderly, who contracted syphilis 12 years before, was treated for six weeks with mercury when symptoms disappeared, after which was not treated till five years later, when laryngeal symptoms developed. Since then, (seven years ago), fairly constant syphilitic treatment and for the past four and a half years under Dr. Howard's care receiving full doses and to the limit of tolerance (with occasional periods of rest), salvarsan intravenously in 0.6 Gm. doses, mercury salicylate intramuscularly in ½ to 1 gr. 2 doses every three to five days; courses of potassium iodide by mouth up to several hundred grains a day, sodium cacodylate in full doses; at times inunctions of mercury, also mixed treatment by mouth. In spite of this intensive medication he developed in the Spring of 1916, symptoms of progressive malignant syphilis in form of enlargement of the gummatous masses in the arytenoid areas almost obscuring the vocal cords and chink of the glottis; also constitutional symptoms not accounted for in any other way, e. g., several chills bearing no definite relation to salvarsan or mercury injections and with no evidence of intercurrent infection. Blood examination was negative for malaria and the cell counts showed the moderate lymphocytosis of tertiary syphilis. Iodides were not responsible for the increased laryngeal swelling as stopping the oral administration of potassium iodide did not improve the condition nor did intravenous sodium iodide later aggravate the symptoms as would have occurred had it been an iodide edema. On the contrary his symptoms improved within a few weeks after the latter treatment was instituted. At the time of the serious manifestations and after talking over this unusual case with some of his friends, the doctor decided to try a commercial preparation of unknown composition stated to contain iodide in suitable form in combination with several other ingredients. After using six tubes of this product he felt the necessity of adopting a treatment of known composition and containing a single ingredient and without any knowledge of previous work done in this line decided on an alkaline iodide. The sodium salt was selected as it seemed a priori more acceptable to the blood than the corresponding potassium compound. After various experiments he found that solu-

tion of 5 per cent. to 10 per cent. strength made preferably with freshly distilled water and sterilized by boiling for ten minutes were correct. he started with 30 gr. doses and increased the daily dosage by increments of 5 gr. a day until 335 gr. as a maximum was reached. In all 125 sodium iodide injections were given totaling 3¾ avoirdupois pounds and averaging 208 gr. a dose over a period of 224 days or 116 gr. per day. Treatment had to be stopped occasionally for a few days to a week in order that veins which had been obscured by pervascular swelling were again recognizable or until thrombosed veins had canalized and could be used again. This difficulty in finding veins for 185 intravenous injections (54 salvarsan, 125 sodium iodide and 6 tubes of commercial preparation) was the most baffling problem in the treatment. Only rarely was the intravenous treatment stopped on account of iodism, in fact, it was remarkably well borne and the injections were painless. The only symptoms of iodism noted were slight gastric irritation manifested by regurgitation of small quantities from the stomach and patches of petechial spots in the skin which were observed at times. Chills were produced when 160 gr. of iodide and 1-5 gr. of mercuric chloride were given combined intravenously, but when given separately, (the sodium iodide intravenously and the murcuric chloride intramucularly), chills were not observed till a dose of 225 gr. of iodide was reached and when no mercury was given chills started with 310 gr. doses of the iodide. *After the exacerbation* the form of mercury was changed from the insoluble salicylate to the soluble bichloride and later this was changed to the sodium-mercuric iodide (2 NaI. Hg. 12) as produced by the following formula devised by the author.

FORMULA

Mercuric Chloride	1 gr.	Mv.....1/12 gr.
Sodium iodide	3 gr.	Mx.....1/6 gr.
Distilled water up to	60 M.	Mxv .....1/4 gr.
		Mxxx.....1/2 gr.

This forms a perfectly stable solution of the previously stated double salt; is less irritating to the tissues; less caustic to steel needles and equally efficacious as the bichloride, more so than the salicylate and less apt to produce salivation and kidney irritation.

Since exacerbation in May, 1916, to March, 1918, a period of 663 days, 396 intramuscular injections of soluble mercury compounds have been given totaling 105 grains and averaging per dose 1/4 gr. or 1/6 gr. per day for the entire period, minimum dose 1/8 gr., maximum 1/2 gr.

Salvarsan—before exacerbation—30 doses 0.6 Gm. each of salvarsan were given in two and a half years; *after exacerbation*—25 doses averaging 0.9 Gm. each in less than two years.

Within a few weeks after commencing the intravenous iodide treatment the dyspnea had so markedly improved and the local swelling was so much reduced that patient was able to work, eat and sleep in comparative comfort, whereas, before he was unable to eat, work or sleep. Since intravenous iodide had to be stopped for want of veins very little progress has been made, although salvarsan has been given in very large doses up to 1.2 Gm., and mercury injections and many courses of iodide by mouth reaching several hundred grains a day have been kept up. Evidently these spirochetes are mercury and arsenic fast. About 10 Wassermann tests were taken in the past four and a half years and these were always strongly positive and the patient still has unmistakable evidences of laryngeal syphilis although enormously improved and gets along in perfect comfort. His voice is somewhat hoarse.

Literature: The author reviewed the literature and states that all the different workers who used the intravenous iodide therapy had become enthusiastic exponents of it and several reported good results in tabes, paresis, aortitis, cirrhosis of the liver, etc. Klemperer used doses up to 50 Gm. (771 gr.) several times a week with good results in paresis and no observer has seen any alarming reaction or harm follow its use.

Howard concludes that sodium iodide is preferable to the potassium salt and may be given in larger doses; also larger doses may be given

intravenously than by mouth as it is better tolerated and iodism less apt to develop. It is harmless and when quick and certain results are required it is the method of election.

DISCUSSION

DR. DWYER congratulates Dr. Howard upon his interest and his persistency in sticking to the treatment. In his own opinion, the crux of the matter lies in the question of intravenous medication. All that can be expected is that no harm will happen to the patient. He has used the injections intravenously for over three years, but had never given more than 25 grains at a time. There is no doubt that sodium iodide given intravenously will produce quicker results than when administered by mouth. Patients sensitive to iodism show no effects when given intravenously.

It is absolutely essential to give potassium by mouth, for much sodium will upset the potassium iodide content of the blood which is very important. Incidentally, he said, he has given sodium salicylate intravenously with no ill effects.

It is a fact that in treating syphilis there has recently been a tendency to get away from iodide and to stick to salvarsan and mercury,—getting away from the fact that iodide has been proved to be absolutely necessary. Neither salvarsan nor mercury has an alterative effect in getting rid of the granulation tissue in which the spirochaetae are shut up. To the specialist this is a very important point but one which is often lost sight of. One need only remember that syphilis, tuberculosis, etc., are classified as infectious granuloma and the necessity of removing the granulation tissue in order that the salvarsan or mercury may act is evident. This, in the opinion of the speaker, the iodide does.

DR. LAPOWSKI does not believe that the spirochaetae are the cause of syphilis. In experiments with animals it has been found that after they have passed through the first and second stages they are shut up in the body in granulation tissue, and the only idea of giving iodide is to act as an alterative. That is why in the third stage we do not get results if we do not use iodide.

DR. DWYER said that in the last six years he has done over 10,000 Wassermanns. The reason they started on this was that they were getting 4+ in spite of all kinds of treatment. One patient had received mercury and salvarsan time and time again, and could not take iodide by mouth. He was put upon intravenous iodide and had given a negative Wassermann for a year and a half. Up to that time he had given 4+.

DR. LAPOWSKI said that Dr. Dwyer's statement that he (Dr. Lapowski) did not believe in the use of iodides hardly expressed his position. In all manifestations of syphilis, mercury is the remedy par excellence, but iodide of potash is a necessity in all cases of syphilis where infiltration takes place especially in the late forms of syphilis. No remedy absorbs infiltration so quickly as iodide of potash.

The method of intravenous injection is prevalent at present, and we try to learn the actions and contra-indications of many preparations when injected into the veins. From that standpoint, the observations of Dr. Howard are important and he is to be congratulated on his persistency; but if he considers that that is a method of treatment of syphilis I can hardly agree with him. What a wonderful machine the human organism is if it can withstand so many injections with impunity. We have at our disposal many other remedies by which we can improve and even bring to total absorption the most aggravated forms of tertiary syphilis in any localization, without recourse to new and sometimes dangerous methods of intravenous injections of iodide. Why not in such cases try calomel injections or inunctions in combination with salvarsan? Injections of soluble bichloride and injections of insoluble salicylate of mercury are not active remedies in such cases.

As to the remark of Dr. Dwyer that I do not believe in the pathogenicity of spirocheta, I can only say that up to the present moment it is not proven that the spirocheta is the direct cause of syphilis.

DR. HUBBARD asked if Koch's requirements in the matter of spirocheta has not been established.

DR. LAPOWSKI replied that out of four of Koch's requirements the most important third requirement,—namely that by innoculation of a pure culture the same disease must be produced,—has not up to the present time been fulfilled; because the lesions obtained in lower apes, in rabbits or in guinea pigs after innoculation of a pure culture of spirochaeta are not syphilis, only reactions of the spirochaeta. Thus, the supporting claim that such lesions, are histologically identical with the lesions of human syphilis cannot be considered as proof of the specificity of spirochaeta after the demonstration of Martha Wollstein and Meltzer of Rockefeller Institute (Jour. Exp. Medicine, vol. xviii, p. 547, 1913) in their studies of pneumonia, which show that the Bacillus Megatherium, a saprophyte, on insufflation can produce in the lungs changes histologically identical with the lesions produced by the specific microorganism of pneumonia. This admits the possibility that the spirochaeta, although it produces histologically identical lesions with human syphilis, may not *eo pso* be the *specific* syphilitic agent. Naturally, a saprophyte may also be recultivated from the lesions of an innoculated animal.

The innoculation of a chancre into the higher apes,—Ourang Outan and Chimpanzee,—produces real syphilis with secondary manifestations; but innoculations of a pure culture of spirochaeta into the higher apes by Muhlens and Levaditi were unsuccessful. The report that a helper in the laboratory was infected during innoculation into a rabbit of the pure culture of spirochaeta is not sufficiently established to support the specificity of the spirochaeta. The observation that keratitus parenchymotosa was obtained in a rabbit which was innoculated into the testicle with a pure culture of spirochaeta is of little value, as keratitis parenchymatosa was produced in a rabbit after the injection of permanganate of potash.

Thus, up to the present time nothing can be brought against the interpretation that the spirochaeta may be considered as the companion,—let us say a constant biological companion,—of the syphilitic virus, and as yet not as the specific agent of syphilis.

That the spirochaeta may be of great value in establishing a diagnosis, is admitted,—not because it is the direct cause of syphilis, but because it associates with syphilis, on the principle as when we say: "Let me know with whom you associate and I will tell you what you are."

DR. LAPOWSKI said that he had no experience of intravenous injection into the jugular vein, and would like to know whether any unusual manifestations were observed during such injections.

DR. HOWARD said he was glad to hear what Dr. Dwyer said about his own cases. He himself did not believe that sodium chloride would prevent thrombosis in the veins. When he first used it, he made it up in normal salt solutions, and it struck him that he was just adding more salt to an already hypertonic solution. He had an idea that sodium chloride would serve the same purpose as the usual chloride in normal salt solution. None of the other men in the literature had mentioned using chloride with it, and they used and recommended solutions of from 5 to 20 per cent. strength.

Referring to Dr. Lapowski's remarks, Dr. Howard said he did not see why Dr. Lapowsky should say that mercury given intravenously was not antisyphilitic treatment, simply because it was not in the form of inunctions; he did not see that it made any essential difference how one gives mercury if you get the effects in the system. He did not know why inunctions of mercury should act essentially different from intramuscular injections. The mercury circulates in the system in the same form, whether given intramuscularly or rubbed into the skin. The patient had had a number of inunctions of mercury before the iodide was started, as well as originally when he first contracted the disease.

As for giving the iodide injections into the jugular vein, the effect was the same as when given into any other vein. It goes through the same channels whether given in the finger first or in the toe. It mixes rapidly in the large blood stream and goes through the same channels.

His own opinion was that sodium iodide given intravenously has advantages over its administration by mouth in many cases, and it was his belief that it has a large field of usefulness. Larger doses can be given and quicker results obtained, and the sodium salt is to be preferred. In this instance it saved the patient from a tracheotomy, and probably saved his life. Drs. Mulholland, Dwyer, Yates, Imperatori, and others saw him when he was on the verge of a tracheotomy. Not long after the intravenous iodide was started, the form of mercury was changed from the bichloride to the sodium mercuric iodide (2 NaI Hg 12) which is equally efficacious and less irritating to the tonsils,—and the salvarsan was continued,—but the intravenous injections of iodide probably turned the tide and saved him a tracheotomy.

Potassium iodide is said by some authorities to be capable of producing edema of the larynx when given by mouth. One doctor who saw the patient advised that all treatment be stopped for a time, as the increased swelling and exacerbation of symptoms might be due to the iodides at that time being taken by mouth. Anyway, the intensifying of the treatment improved the condition; evidently the edema was not an iodide edema. Klemperer gave 50 gramme doses to patients, which is more than double the size of the maximum dose given to this patient, and claimed that he had no ill effects except slight flushing and quickening of the pulse.

Dr. Howard said he saw very little, if any, danger in intravenous sodium iodide therapy if given properly; in fact, in his opinion the intravenous route is the most effective way of getting the full iodide action and is less apt to cause side actions or iodism.

Sarcoma of Orbit Removed Through Killian Incision: Patient and Specimen. Presented by DR. COFFIN.

DR. COFFIN said that this man had come to the Eye Clinic of the Manhattan Eye, Ear and Throat Hospital on account of exopthalmous of left eye and loss of vision. He was asked to see the case and made a diagnosis of ethmoidal mucocele—whereupon the case was turned over to him.

The usual Killian incision was made as for an ethmoidal operation, but much to his surprise no cyst was found. The anterior border of the naso

The usual Killian incision was made as for an ethmoidal operation, but much to his surprise no cyst was found. The anterior border of the naso orbital wall had been absorbed. Dr. Coffin removed this wall well back toward apex of the orbit cavity. The entire contents of orbit appeared smooth and covered by an aponeurosis. Noting that as his finger moved over this surface a slight depression as would be between two such ovoid bodies he introduced into this sulcus a curved periostal elevator when this growth perfectly encysted popped out free and clear. He thought it to be a simple cyst, but on study found it to be an encysyed thought it to be a simple cyst, but on study found it to be an encysyed sarcoma.

DR. MITTENDORF, who had first seen the patient, reported that on admission—the vision of the affected eye was 5/200 that the optic nerve was swollen . . . and that there were a few haemorrhagic spots. The veins were swollen and engorged. There was diplopia due to the exophthalmous. Today the optic nerve shows no swelling; no more haemorrhage or exudate in the retina, and no diplopia.

Upper Dental Plate Removed from Esophagus. (Radiograms). Presented by DR. JAMES G. CALLISON.

The patient, J. E., Male, age 36, a steward on one of the Ocean Liners, had been taken to St. Mary's Hospital in Hoboken with the history that he was lain down to read at night on March 19, 1918, with the dental plate in position. He had fallen asleep and when he waked early the next morning the dental plate was gone, so he thought he must have swallowed it. At St. Mary's Hospital an x-ray was taken, which showed the sharp angle of the plate projecting above the sternal notch and ex-

tending from there to the lower margin of the first rib. He was then referred to the Manhattan Eye, Ear and Throat Hospital for removal of the plate.

When first seen by Dr. Callison he was gagging and showing the effects of water hunger. Cocaine was used as an anaesthetic and the dental plate was removed with the Jackson Oesophagoscope, two or three minutes being consumed in the work. It was 4.5 cm. long, 3 cm. broad, and almost 3 cm. deep, and was found at almost the full length of the Jackson oesophagoscope from the upper teeth. The dental plate had passed through the right pyriform sinus as it was swallowed and had caused considerable superficial laceration of the tissue. The dental plate was removed from the oesophagus at 9.45 p. m., probably about two hours after being swallowed. The patient had no further difficulty after the plate was removed.

Discussion on Negative Pressure as a Therapeutic Measure in the Treatment of Sinus Disease.

DR. LEWIS A. COFFIN said that in his hands Negative Pressure had proved so valuable a therapeutic agent that he was surprised to learn that its value was questioned by others. His interest had been aroused first by Dr. Haskin who, coming to his throat clinic, and watching him endeavor to treat sinus cases by various conservative methods, would before leaving say—Coffin, if you would try suction on these cases you would be gratified by the results, your patients would get great relief and be most grateful. Then he saw Dr. Haskin demonstrate his Suction Method when he became convinced that here was another helpful method of attacking a diseased sinus—Dr. Haskin's method was to use the negative pressure through a catheter inserted into the various crevices of the nose and as near ostia of the different sinuses as possible. Dr. Coffin could visualize this method of cleaning a cavity only if open end of catheter came in contact with the secretion and the element of cohesion was sufficiently great that it hung together until it had been all drawn into or through the catheter.

DR. COFFIN conceived the idea of applying the Negative Pressure through a bulb that would completely fill one nostril, while the other nostril was completely closed from without, and the oro-pharynx closed off from the naso-pharynx by known methods in Poulitzeration of the ear. He found it worked. Tried it on children, depending on the crying of the child for the separation of the pharynges and was most gratified with the results.

DR. COFFIN said it occurred to him that it would be a desirable thing if one could fill the nose with medicinal agents while the sinuses were partially vacuumized. To this end he had constructed the instrument that bears his name. The only disappointment had come from finding that another man, Dr. Frank L. Stillman, had described the same method of treatment, Dr. Coffin having felt that he was offering something new and worth while himself.

DR. COFFIN said he thought one could more thoroughly cleanse the sinuses by use of the alternating and negative pressure currents than by the negative alone.

DR. COFFIN said no one claimed cure. It is rather a help and aids nature to a more speedy return to health. Washing, douching, inhalations, all contribute to the same end. The acute cases will generally get well under any intelligent treatment. They frequently get well under suction. For the speedy relief of symptoms in acute cases, he said suction took first rank patients experiencing marked relief from first treatment. However, Dr. Coffin said this as an aid to speedy recovery, the actual washing out of the cavity heads the list, if one can enter into the cavity; but there only a few such cavities. No one expects to get into the ethmoidal cells.

DR. COFFIN said that one of the criticisms on the method was that it conduced to haemorrhage. In certain classes of cases suction is not suitable. Atrophic rhinitis does not stand it very well . . . if much

suction is used the patient cannot stand the pain. In degenerative conditions of the mucous membrane which bleed easily, there is no question but that it draws blood to the surface and possibly into the vacuum bottle. Also, unless one is very careful there is danger of injuring the nasal septum with the nasal plug, which will cause bleeding if suction is continued but he said that during the thousands of times that he had used this method he had at times drawn considerable blood into the vacuum bottle, but he had never known of a case of subsequent bleeding—and in no case with a normal membrane had he seen bleeding unless the septum was injured. In cases of atrophic membrane, or more or less devitalized membrane, the employment of suction is to his mind the best form of treatment. It is Bier's method applied to the nose.

DR. COFFIN said that it had also been claimed that the treatment had a tendency to produce polyps, this he doubted. He would as soon believe that some one had produced an erthyma bullosum from the use of a dry cup. A polyp is an absolute disease, a disease that unless too far advanced will clear up under the application of the negative and positive treatment.

DR. COFFIN said that there was not a man present who had exenterated ethmoid cells in noses where polyps were visible previous to operation who had not at subsequent visits of the patient found polyps presenting in the nose, they having descended into the nose from an opened ethmoid cell. It was easy to understand how a man showing no polyps in his nose might have them pulled into view by the application of suction, but as for suction producing them he did not see how it was possible.

DR. HURD asked how much pressure should be used for nasal work?

DR. COFFIN replied that he did not think it was of much use until up to from 8 to 16 inches of mercury. One patient who came to mind had been treated at least 200 times a year. The highest pressure obtainable with the Sorensen pump, about 20 inches of mercury is used on him. When this man came into the clinic his nose was full of polyps and his sinuses full of pus. The polyps were removed surgically and the sinuses operated intra nasally so far as Dr. Coffin saw fit to operate, since which time suction has been used almost daily to the man's benefit and comfort. He has no more polyps. One may use all the pressure the patient will stand.

DR. C. G. COAKLEY said that this discussion was the result of some remarks that he had made on at least two different occasions, and he would take up the points that had been presented, speaking first from the standpoint of the polyp. He had stated that he had in some cases seen polypoid conditions of the mucous membrane which he believed to be the result of suction. Dr. Coffin had said that he did not know what polyps were.

When he had been engaged in teaching histology, Dr. Coakley said, he had cut many sections of polyps and studied them carefully, and had reached the conclusion that in a large percentage of cases polyps are nothing but edematous mucous membrane, and when Dr. Coffin said that after operating upon ethmoids and other portions of the nasal mucous membranes he at times found polyps a few days later, he had stated exactly what took place. There was an inflamed edematous portion of the mucous membrane which had all the appearance of a polyp. If such cases are watched, a large number of them will disappear as the result of healing process.

Those who, like himself, had observed the mucous membranes of patients who had been treated by suction had doubtless noted the same thing that he had seen,—an acutely edematous mucous membrane which histologically is a polyp. That was what he meant by suction polyps. Suction will produce these conditions in some mucous membranes, in others it will not. In any case where negative pressure produces a swollen edematous mucous membrane, harm is done, as the drainage from the various cavities is hindered rather than facilitated. In such cases negative pressure should not be used.

DR. COAKLEY agreed with Dr. Coffin that suction is often a valuable aid in diagnosis. Many times, however, where the cavities were filled with

secretion but none could be noted coming over from any of the orifices by ordinary inspection with a head mirror and nasal speculum,—even after suction had been applied,—transillumination showed a dark shadow, and he had punctured the antrum and washed secretion from it; so that even as a method of diagnosis, if positive it is good; if negative,—like many other such negative results,—not too much dependence should be placed upon it.

He also agreed with Dr. Coffin's statement that we do not often wash out an antrum in children under seven or eight, or even ten years of age,—yet these cases are seen frequently in children and there is no doubt that they do have sinus disease,—they have a "cold in the head" with abundant secretion and this condition keeps up for three or four weeks. A large majority of such cases have sinus disease. This can be determined not by transillumination but by radiography.

Dr. Coakley said that his method of treating these cases was to spray the nose with 2 per cent solution of cocaine to contract the membrane, then wait for some time and irrigate the nares, when a long string of mucopurulent would come out of the nares. If the patient blows the nose while some is hanging from the anterior nares more will come out. The amount of material is far greater than one can see inside the nasal chambers by any examination. There is no doubt that in a number of these cases the long string of ropy material comes from the maxillary sinus or other sinuses and is dragged out by blowing. A similar condition sometimes happens with adults where the transillumination is dark; they blow their noses while you are preparing to wash out the sinuses, and when you wash it out there is nothing. It has been blown out.

Dr. Coakley said that he would be much pleased if any one could make clear to him the physics of suction drawing anything out of a sinus. Many of the acute cases get well after suction, many get well after washing, and other methods of treatment. After a few days they will get well of the neuralgia. What is the history? They tell you they blew out the discharge and the neuralgia disappeared. (He then drew a diagram to illustrate the point.) The negative pressure of suction will removed; but he could not see by what principle in physics any negative remove any scaretin in the nose if a catheter is used, nearly all can be pressure could be applied that would draw anything out of the inside of such a cavity, viz., a one with a rigid bony wall. On the other hand, if there is inside a cavity a tenacious secretion that is coming out over the margin, some tenacious mucus pouring out—if it is tenacious it drags out more that will come with it, just as in blowing the nose. He did not, however, know of any principle in physics that would take out thin watery fluid in that position.

One cannot in any case of acute sinus involvement look into a wide open antrum or ethmoidal or sphenoidal cell. With the pharyngoscope, however, you can look and see coming out of the sphenoidal orifice a little thin thread of mucopurulent secretion, and that is diagnostic that it has come out of the sphenoid. If you don't see the opening and can apply suction to that thread and pull out all the rest of the secretion, you can clean the sphenoid out, but if the thread breaks you leave the rest of the material inside; if you wipe off the thread, you can't see where the material comes from. You can look over the inferior turbinate and see mucus coming from the orifice of the maxillary sinus, but if you wipe that away you cannot see the orifice because it is edematous and swollen. If a patient has a frontal sinusitis and you remove the anterior end of the middle turbinate, and the ethmoid cells surrounding the middle duct, you may still not be able to see the orifice. Let the case get well and again examine the patient, and you can see a good sized opening; but the next time that patient gets up an acute condition you cannot see the orifice.

What happens when negative pressure is applied is that the edematous swollen tissue is swollen still more and the tissue is brought together, making it impossible for the negative pressure to take effect in the sinuses. You may bring down the secretion, to the orifice of a frontal or ethmoid and if it breaks off you don't get it.

DR. COFFIN claimed that these cases are relieved and that the headache is relieved. We know that a certain number of cases have a headache that resembles neuralgia, and as soon as a very little of the secretion is removed the headache is relieved. That simply means that the tension is relieved, just as it is relieved on blowing the nose. The simple reduction of the tension relieves the pain.

DR. COAKLEY said that he had tried suction and did not have as good results from it as from ordinary washing of the nose; the patients are just as likely to be relieved one way as the other. If he wishes to get a quick result in sinus disese, he does not rely simply upon washing the nose. If he can get into a cavity and remove the secretion, the case will get well much more quickly than by simply washing the nose. Many patients are treated by their family physicians who wash the noses out regularly, and many patients get better and do not have chronic sinus involvement. Sometimes it almost seems as though the specialists are doing more for frontal sinus cases than is necessary, and yet it is difficult to determine sometimes in which cases treatment should be stopped and in which it should be continued. Sometimes he had had patients come to him who had had suction treatment, and they had not made the progress he thought they should. They were obstinate cases, no doubt; but after he applied suction and got out secretion, and then washed out the maxillary and frontal sinuses and the sphenoid, he had been invariably surprised at the amount of secretion that was still in the antrum, still in the frontal, and still in the sphenoid. The amount removed by suction is only a small proportion of the contents. Unquestionably suction is a valuable aid in removing secretion from the nose, but irrigation is a much more thorough surgical procedure, so far as the removal of the inflammatory products within the sinuses.

DR. FAULKNER said that for the last six months he had been using a combination of suction and irrigation, by placing an irrigator containing 16 ounces of warm saline solution level with the patient's head. To this a piece of rubber tubing is attached, with nozzle to fit the nostril. The suction tube with a similar nozzle is connected with a large wash bottle; this bottle and the pump is a suction gauge. One nozzle is placed in each nostril, the irrigation clamp is released, and the full force of the suction turned on. The fluid passes rapidly from the irrigator through one side of the nose and out the other to the wash bottle. On examining the fluid, the secretion from the nose will be seen floating about in flakes. Dr. Faulkner said that he had found this method more effective than suction alone. If one side of the nose is partly obstructed, put the suction nozzle in the more open side.

DR. DWYER said that the discussion seemed to have narrowed down to three points,—the value of suction for diagnosis,—which had been pretty well covered,—for cleanliness,—which had also been well covered,—and for therapeusis. He disagreed entirely with Dr. Coakley in regard to the histology of the mucous membrane after the removal of the polyps. The degenerated mucous membrane was histologically what Dr. Coakley had described, but after suction was applied or hyperaemia of the membrane was produced the tissue could be cleared up, as Dr. Coffin had stated. The very fact of getting an oedematous mucous membrane after suction is an argument in favor of producing a cure.

For over a year Dr. Dwyer had been making blood counts on normal turbinates before suction, and had been making blood counts after suction. These counts had also been made with normal saline solutions and with hypotonic and hypertonic solutions. With the hypotonic solution a diapedesis is obtained; a shrinkage of the mucous membrane and an increasing blood supply if the hypertonic solution is used. The polyp cases which Dr. Coffin reported probably cleared up because of this very point, Bier's hyperaemia. This hyperaemia is one of the most important points in favor of suction if the circulation is still good. The whole idea is to get an increased blood supply. That is why we fall down on vaccines, as the lymphatic supply is so poor that free interchange does not take place.

DR. COFFIN had some years ago reported in regard to radiography with children, all the cases clearing up under suction alone.

Then came the question of whether or not the openings of the sinuses could be seen. That does not matter. If it is a simple irrigation of the nose we don't get up to the frontal sinus, and we do clear the condition by suction.

DR. DWYER said that he was all the time warning the men to look out for irrigations of the nose, and had been following this matter up with Dr. Haskin for eight or nine years. We can take x-ray photographs of the sinuses,—both antra appearing dark on transillumination,—and then simply by using suction and securing hyperaemia the cases will clear up without getting into the sinuses at all. That is different from puncturing and getting into the sinuses.

The other point is that these apparent washings from the sinuses which appear as if they contained pus, contain no pus cells, no bacteria, but are loaded with flakes of epithelium, etc. Dr. MacKenty has used this method for months, and he employs both irrigation and suction. The irrigations are brought to the laboratory in sterile bottles, and when tested there is nothing in them,—yet one would think from the appearance that it was a typical pus. The advantages of suction are so great that the Manhattan Eye, Ear and Throat Hospital have practically stopped all irrigations of the nose. Irrigation has its place and suction has its place, and if suction is properly used it never causes any trouble.

Regarding the physical laws of suction, the laws do not apply here, and the whole difficulty seems to be that each man has a different idea of the principles underlying suction. The principle is not to empty a sinus but to get drainage and, as is well known from the laws of physics, if you exhaust the air in the nostril, producing a low air pressure, the air in the sinus whose openings are closed expands, according to the law of physics and the plug of pus is driven out. Dr. Coakley seemed to think the idea was to empty the sinus in the same way as washing it out. That is not the idea on which suction is based. All we aim at is get drainage, and suction does this by the laws of physics.

DR. HURD said that in 1913 he had seen Killian in the clinic use suction in the nose with negative pressure, and when he got home he tried it on himself, but it was rather uncomfortable. After using it for about a month or six weeks he gave it up as it did not seem worth while. For operative work it is invaluable. For diagnostic work with the canula, if you get it in the nose and there is a string of muco-pus you may drag it out or by sucking around you can find the posterior or anterior ethmoids and clean them out. Dr. Hurd said that he uses it all the time to clean out noses and employs it sometimes as a general vacuum for diagnosis. He does not get very much secretion that way, but once in a while it gets some pus down and from that one can lead up to a diseased sinus. He said that he had asked Dr. Coffin about the pressure, for in general practice work in the nose he had found that five inches is liable to cause haemorrhage. Some patients will stand more, some less, but in his experience he had found that five inches was about the average for suction in the nose and about ten inches in the tonsils. As for using it as a therapeutic agent to produce Bier's hyperaemia, Dr. Hurd said that he had not derived sufficient benefit from it in chronic cases to warrant using it alone in treatment. If a sinus is full of polyps, he fills it with bismuth paste; in chronic cases that seems to give better results than either suction or douching. He had demonstrated that several times. He had douched a frontal sinus, getting out pus, taken off the anterior wall and found a blood tract where pus was secreted under pressure. The bismuth paste spreads out and produces better drainage. If you get into the sinuses, all right;—douche them out. Once in a while with tension you get a little negative pressure, then stop the positive pressure.

DR. HURD repeated that as a therapeutic agent he had not found it of much value, but for operative work and for cleaning out the nose, and for diagnostic purposes he had found it very useful.

DR. GLOGAU used Dr. Coffin's apparatus for a long time. He considers it of great value as far as suction is concerned. He is however opposed to use it for blowing and spraying. He claims that when suction is applied some pus is always aspirated into the small metal tube inserted within the larger tube and is then blown into the patient's nose or even middle ear, thus infections may easily occur. Besides, there are always large masses of pus around the positive pressure tube and it is almost impossible to keep the apparatus sterile. By turning off the suction valve in order to allow positive pressure, the vacuum is abolished and the medicament might just as well be blown into the nose by means of an ordinary atomizer. He uses now the new Sorensen suction outfit, being of simple construction and easily kept clean. He has devised a small slip attachment by means of which flexible catheters can be used for local suction in connection with this apparatus.

In Ozaena he considers suction a valuable remedy. By engorgement of the blood vessels, and the onrush of blood corpuscles the atrophic membrane receives renewed vitality, crust formation and even bad odor gradually diminish. He found this method, although it does not produce an absolute cure, more reliable than the application of ozaena vaccines, which he investigated at Vanderbilt Clinic for a length of time and found to be a failure. In acute conditions of the frontal and ethmoidal sinuses early suction may prevent late operation. In acute maxillary sinus suppuration he perforates the inferior meatus by means of Wilaminsky's trocar and after irrigation applies the suction catheter. Dr. Coffin deserves full credit for proving the usefulness of suction in rhinological conditions.

DR. COFFIN closing said, "Dr. Coakley has said that by douching the nose he thinks he gets the various sinuses as clean as can be done by suction," now I think that after he has cleaned up a nose as thoroughly as possible, I can apply suction and take out as much or more pus as was done by the douching.

DR. COAKLEY states that suction by congestion of the membrane causes a closing of the ostia of the sinuses thus impeding drainage. My own experience is quite the contrary. Certainly circulation is stimulated. The polyps that I spoke of having appeared in a man's nose after opening the ethmoids were veritable polyps and would remain until removed by snare or otherwise.

DR. COAKLEY remarked that it was evident that he and Dr. Coffin were talking of different things. He had referred to the polypoid masses that always occur in the nose after operation.

DR. COFFIN replied that that was another matter that of course the swollen, oedematous, granulation masses that occur after operations will subside and disappear—but it was not of this class that he spoke.

DR. HURD states that he hesitates to use a pressure of more than five inches of mercury on account of haemorrhage.

DR. COFFIN said that he would guarantee to use 15 inches in any child of six years without causing haemorrhage, or a like amount in any adult nose presenting a fairly normal membrane.

He had been trying it for some years and would be glad to demonstrate it at any time.

Meeting of April 24, 1918.

Vertex Headache, Preceding and Following an Operation for Frontal Sinusitis. DR. THOMAS HARRIS.

The patient was presented as the case demonstrated a number of interesting features. Dr. Harris said that some months before he had presented another patient of about the same age which aroused considerable discussion. That was a case of osteomyelitis operated upon for frontal sinus and ethmoid trouble. After a long and hard fight, so far as the osteomyelitis was concerned, the patient made a complete recovery.

This patient was first seen five weeks ago, and had come into the hospital some four months previously with an acute suppuration of the left frontal sinus with high fever, and intense pain. He was operated upon by Dr. Forbes (Dr. Harris' associate). So far as the pain was concerned there was immediate relief, and the patient was discharged in due time to the out-door clinic. The wound did not heal, however, and when he came under Dr. Harris' observation he was again having severe pain in the left frontal region. There was a fistula here, and there seemed to be little question that there was a sequestrum. Operation was performed a day or two later, and the diagnosis of sequestrum was confirmed. A large completely detached one was removed. The inner plate was quite bare. The communication of the nari-frontal canal was quite free. Very little was done in the ethmoid region, which had previously been operated on, and the wound was closed up. One stitch was included in the dressing, and caused a slight complication, but the patient made a good recovery so far as pain and discharge was concerned, and was discharged from the hospital.

He came back from time to time complaining of pain, and finally it became clear that the pain was localized in the left side and back of the head. The pain at times was so intense that the man could not work. It grew worse, and for the last ten days the man had been under close observation. The neurologists can discover nothing indicating a new growth on the brain; there are no evidences of meningitis; the blood and Wassermann tests are negative; the sphenoid sinus is easily probed, and the frontal sinus is wide open; the x-ray pictures throw no light on the condition.

DR. HARRIS said that since he had last seen the patient, there had developed a swelling over the right eye, and that the night before pain had developed here, also, that though there had never been any pus observed in the right nostrils one of the men who had just examined the case thought he could detect a little pus.

The question then was to find an explanation for the chronic pain, and second to explain the swelling that has just developed. Was there an acute frontal sinus condition, or was there an osteomyelitis, similar to the case previously presented.

DR. HARRIS said that he proposed to have the patient admitted to the hospital, and would open up the swelling.

DISCUSSION.

DR. FREUDENTHAL said that after listening to the history just given there would seem to be an acute empyema of the other frontal sinus; there was an abscess outside the bone, which in all probability had broken through, so there was pus in the sinus. Dr. Freudenthal also said that he had had a great deal of experience with these cases of persistent headaches, and had seen some very bad cases for which he had not been able to do anything whatsoever. In one instance the patient, a woman, had an empyema of the right antrum, and suffered with intense headaches. Operation upon the antrum gave no relief. The pain seemed to be in the same locality as in this case. After a while, an empyema of the frontal sinus developed. The frontal sinus was then opened, but nothing was found to account for the pain. Dr. Freudenthal said that he had never derived any satisfaction from sending such cases to neurologists. The cause for some of these headaches is, very obscure, and in several instances he had been unable to manage them.

DR. MACKENTY said that from the condition presented it would seem as if there had been frontal sinus trouble on the other side for a considerable time, and that the case was probably an osteomyelitis rather than a perforation of the sinus. As Dr. Freudenthal had said some of these headaches are most puzzling and annoying. The condition might be due to some necroses overlooked at the time of operation. Was the sphenoid opened? He had seen cases where there was no cause for the headache except a chronic osteitis, and on secondary operation he had found bare bone secreting pus and no evidence of healing. This patient probably

had a chronic osteitis of low grade which produced the condition presented.

DR. McCOY said that headaches following sinus infection are liable to be accompanied by involvement of the spheno-palatine ganglion, and cited a case in which the frontal ethmoid and sphenoid were opened and drained freely, and yet the patient continued to suffer intense pain on the top of the head. Thinking that there must be some point that was not draining properly a careful examination was made, nothing could be found, and finally reached the conclusion that there was an involvement of the spheno-palatine ganglion. The patient had had a number of attacks, which could only be controlled by opium. It seemed to be an acute inflammatory condition of the spheno-palatine ganglion.

DR. KERNAN, referring to Dr. McCoy's remarks, said that it would puzzle him to account for the situation of the pain if the spheno-palatine ganglion were involved,—that is, the pain in Dr. Harris' case and in the case mentioned by Dr. McCoy, situated in the vertex of the skull and running back to the occipital region. That region is supplied by one of the branches of the supra-orbital nerve. The spheno-palatine ganglion on the other hand is connected with the second branch of the fifth nerve, which is the infra orbital nerve. Thus he could not quite see how the pain in the vertex could be explained anatomically by the involvement of the spheno-palatine ganglion. It might be referred to the cerebral ganglion if that were attacked by inflammation.

DR. QUINLAN inquired about the condition of the patient's teeth—a persistent headache of this type may be due to dental irritation, luetic deposits or plastic exudates along the nerves.

DR. HURD said that he had made a hasty examination of the tumor, and it was not attached to the periosteum. It was evidently in the connective tissue of the scalp. That would lead him to think it was not an osteomyelitis, where there would be an inflammation of the periosteum first, which would bind it down,—a thick, heavy induration. This seemed to be an isolated abscess in the tissue. In his opinion it was neither an osteomyelitis nor a perforation from the sinus.

DR. DWYER said that the point made by Dr. MacKenty,—that in most of these cases of obscure headache there is an osteomyelitis,—was important. Most of them are syphilitic in origin. In most cases of osteomyelitis, however, we do not get a positive Wassermann until after provocative treatment. He did not know of any other lesion that would lead to a sequestrum of bone, as in this case, and he advised putting all such cases on syphilitic treatment. The nerve disturbance was different from that produced by involvement of the spheno-palatine ganglion, as pointed out by Dr. Kernan.

DR. HARRIS, replying to Dr. Quinlan's inquiry, said that so far as they had been able to discover there was no dental origin for the pain. The patient had had pretty active iodide of potassium treatment, but nothing further, but had not been relieved.

Cyst of Jaw: External Operation. Carrel-Dakin Treatment (Patient presented.) DR. TALBOT R. CHAMBER.

Miss E. R., aged 34.

In 1912 a swelling of cheek was opened through mouth, curetted and swabbed with Tr. iodine. Apparently cured after three months.

October, 1917. Return of swelling treated as before.

January 30, 1918. Again returns. Jaw curetted through external opening.

February 21. An opening occurs into mouth and wound becomes purulent.

February 27. Dr. Harris suggests either removal of jaw or x-rays or Radium.

March 23. 150 milligrams Radium for two hours—externally.

March 26. Radium internally applied.

March 30. Radium internally applied.

April 27. X-ray applied.

Teeth were extracted as necessary.
Papillary epithelioma is the description of the material curetted from jaw.
X-ray pictures before and after operation show only a narrow shell of bone, enough to keep the surface from depression.

DISCUSSION.

DR. HARRIS said that he had seen the patient with Dr. Chambers on several occasions, and it was certainly a most interesting case. Some of those present might recall that he had showed before the Section a young man with a diagnosis of angioma on the right side of the mouth and in the cheek. Dr. Chambers had thought that case and this one had some points in common, and asked him to see this patient. At that time he told Dr. Chambers that he thought some malignant condition was present, and that the outlook was not very encouraging. Since then, however, the whole picture had changed. Instead of being decidedly cachectic, the patient had the appearance of being a well woman, and he would make a very different prognosis. Dr. Chambers was to be congratulated on what had been accomplished.

Report of a Case of Epistaxis Occurring in a Haemophiliac. DR. T. J. HARRIS.

The patient was a child nine years of age who has been the subject of much interest and a great deal of anxiety. She was admitted to the Medical Service of the Post-Graduate Hospital last summer with a history of repeated haemorrhages. At that time she was given a series of injections of human blood serum, and at the end of four or five weeks of such treatment her blood clotting time had improved very much, though it was not normal. At the urgent request of the medical men who had the case in hand, a tonsillectomy was performed and one tonsil was removed. The result was a profuse bleeding which continued for a number of days, and required control packing. The patient was deeply exsanguinated and almost reached the point of flitting out. She was given further human blood serum injections, and finally recovered and was discharged.

Last winter she was admitted to Dr. Harris' service with a history of bleeding from the nose, usually from one side. There was no history at that time of further bleeding except that she had passed blood from the bowel, and it was presumed that she had swallowed the blood. The father and mother were both healthy, and had one other child with no history of bleeding, and this little girl had never been seriously ill. After she was admitted, a very careful study was again made of her blood. In connection with the treatment she was given three human blood serum injections, altogether 75 cc. This time, however, it did not stop the bleeding, which continued to recur from time to time, at intervals of a week or ten days. Then transfusion was tried,—altogether five times,—and she received fully 1000 cc. Except on the last occasion, the donor was a member of the family, and the blood was very carefully studied.

DR. HARRIS said that Dr. Dwyer would tell his study of the blood. He said that he had just been reading in the Transactions of the American Laryngological Association the history of a case of hemophilia, finally saved by transfusion, where there was no such examination of the blood as this had been made. In this case, however, the blood was not only examined from the point of the blood plaques, but also from the chemical standpoint. In the past, diagnoses were based on the demonstration of the blood plaques and the diminution in the blood clotting time; but the men who are best acquainted with the subject do not today believe that there is sufficient evidence in the blood plaques alone to make such a diagnosis as compared with purpura. This is a matter, however, that we wish to leave with the haematologists. If it is purpura, the outlook for the patient is very discouraging, if it is a true haemophilia the outlook is very different. Every time after bleeding

the child developed what seemed to be purpura spots, which all disappeared later.

One interesting feature of the case would be reported later at length. On examining the chart it would be seen that in connection with each outbreak of the bleeding there was a shooting up of the temperature,—beginning almost immediately with the onset and for days afterward, even without a great deal of loss of blood. Down would go the haemoglobin until all that had been gained at 65 per cent would be down to 35 per cent.

During the bleeding spells it was found that packing with moist gauze would control the condition more promptly than anything else.

DISCUSSION.

DR. DWYER said that the interesting thing about the blood in this case was the following up of the late chemistry methods. In doing clotting time work it had always been unsatisfactory to take the blood from the fingers. There were a number of ways of doing the work, and the multiplicity of methods was an indication of their unreliability. Some bloods have a clotting time of five or six minutes, and would bleed with typical signs of haemophilia; so the diagnosis by means of the clotting time has been given up.

Howell, of John Hopkins has been studying these cases and found that in all that he studied there has been a lack of pro-thrombin . . . or there was relative increase of the anti (thrombin). In the light of these cases, the coagulation time varied up to thirty minutes or twenty-four to forty-eight hours,—and the discussion arises as to whether it was purpura or haemophilia. It did not seem that any one can diagnose between the two. Purpura has a number of lesions. Dr. Dwyer said he had seen purpura in very long standing cases, and he had seen it in a number of cases of sepsis,—so that barring one point, the difficulty in counting the blood platelets, the present method of blood platelets could be cast out as a method of diagnosis.

The fact remains that this child, from her blood test, has a normal calcium salt content but a diminished amount of thrombin, together with a relative diminished amount of anti-thrombin, which leads to the clotting of the blood.

The most interesting point from the speaker's view was the fact that the child was transfused three or four times from an uncle, without any difficulty whatever. The day before, however, she was transfused from a professional donor. The blood had been tested out and found to be group No. 1, and blood from a No. 1 group was used. After 15 or 20 cc. had been thrown in, the child cried: "I am dying, give me a drink." She was in a typical condition of anaphylaxis. The only thing to be done was to stop the transfusion. They either die or get well. Fortunately, this one got better.

No matter how careful the tests or the laboratory work, the tests are not equal to nature, and we will come across cases of this kind. The best method is transfusion, and it ought to be done quickly and without waiting. Lists of donors of the three groups of blood are kept, and there are always on hand samples of blood 1, 2, 3 and 4. The patient's blood is tested out against these samples, and a suitable donor selected and the transfusion can be done within six, eight or ten hours.

DR. HURD said that he had not done anything along the line of this transfusion work for a long while, though three or four years ago he had published a case in THE LARYNGOSCOPE. The patient was a young lawyer who said he was a bleeder. His capillary test was normal, and a submucous operation was performed, and there was no trouble. Later his tonsils were removed, and there was trouble for a week.

Some five years afterward he used a postnasal applicator, and this was followed by bleeding all night. Dr. Hurd was called to see him, and he was admitted to the hospital. The bleeding was finally controlled by packing (described the packing) and after this was removed the next morning he did not bleed any more.

Then he went into the army, and Dr. Hurd met him last summer and warned him of what might happen to him. Some time afterward he was reported to have had a slight wound, and the next information was that he had died.

DR. HOWELL made two examinations of his blood; the thrombin and the anti-thrombin were normal, and he was called a modified haemophiliac. Then Hess examined him, and found the blood reacted normal, yet any wound of his mucous membrane was almost fatal, and the last wound killed him. After the blood left his tissues it clotted normally, but it would not clot in the tissues.

DR. CARTER said that he had always understood from his reading on the subject that heredity was considered an essential factor in haemophilia. Grandidier considered it the most hereditary of all hereditary conditions,—and he asked if that theory had been abandoned today. (Dr. Carter believes that it has not.) This patient had no hereditary history, and unless that theory was now regarded as exploded, he believes that this is not the case. The condition in this case would seem to be an acquired tendency to bleed. Haemophilia is a rare disease, whereas an acquired haemorrhagic diathesis is very common.

DR. MCCOY asked Dr. Dwyer to explain a little more clearly about the four classes of blood to which reference had been made.

DR. MACKENTY said that he knew nothing about the subject of haemophilia, but had seen two cases which would seem to point to the possibility of some subtle toxaemia being at the bottom of the haemophilia. Both patients died before they reached forty of a chronic kidney condition,—a chronic nephritis. Both were pronounced haemophiliacs. He had operated on both, and both gave him a great deal of trouble. Is there any connection between the disease and the cardio-cascular degeneration?

DR. HARRIS said that judging from literature, the whole subject from the standpoint of the blood is still subjudice. In his opinion difficulty of properly estimating the blood plaques is still so great that one can easily make a mistake. The difficulty in this instance of making a differential diagnosis between purpura and haemophilia, might be lessened by excluding haemophilia on the ground of its occurring in a girl child, though that has been pretty generally discredited. Whether in the purpura cases there is generally a septic condition, he could not say, but he believed that it had been true in most of them. Most of the difficulty this child had had was in bleeding during the night and swallowing the blood. Dr. E. W. Peterson who is much interested in this case gives a bad prognosis,—claiming that 25 per cent of such cases die before they reach thirty. There seems to be some underlying trouble which has not yet been found.

Clinically, there seems to be more hope from transfusion than from anything else.

DR. DWYER said that the question of heredity had been neither proved nor disproved. In the cases he had seen there had never been any history of heredity. In one of Dr. Arnold Knapp's cases the patient had one eye totally destroyed; he had had haemorrhages since he was two years old, and had been worked over by Howell and Hess. That patient came from Boston, and they had a complete family tree, and no history of haemophilia.

In regard to the cardio-vascular symptoms, Dr. Dwyer said he did not know. There is no doubt but that it is a toxaemia originally, which leads to the destruction of the (pro-thrombin) or the production of anti-thrombin to a certain extent the patients have been digesting their own blood. In his opinion there was no doubt that the temperature was due to the digestion of their own blood.

Four groups of blood have been worked out clinically. If the blood of group 1 or 2 is used with any other group it would be poisonous—there would be anaphylaxis leading to death within fifteen minutes or half an hour; or the donor's serum getting in would agglutinate the pa-

tient's red blood cells;—so that we have to work with the patient's serum as well as with the donor's cells.

It has been found that the blood of all persons falls into four groups. Group 4 does not agree with any of the others, but group 1 would have to be used with group 1, or donor 2 with 2, 3 with 3. If you interchange them you get results as in the old days when they did not know about these tests, and every now and then patients would die. Since the groups have been classified we can expect success in practically all cases.

Ozena, Secondary to Chronic Sinusitis. Operation and Recovery. DR. E. ROSS FAULKNER.

I first saw this patient December 1, 1917. He was a boy 15 years old, slightly undersized, but otherwise he looked healthy. His history was as follows: Since early childhood, for as long as his sister could remember, he had had purulent discharge from his nose with a most disagreeable odor. This made him a great source of worry to his family and rendered his presence in any school almost unbearable. His general health, in spite of this, had always been good. The odor was as bad as in any case I have ever known; in fact, it permeated the whole room. On examination, I found his left nares filled with foul crusts which could be detached without causing bleeding; the mucous membrane looked shrunken but was not markedly atrophic; the right nares contained liquid puss without crust formation, the puss apparently coming from his ethmoids. The nasopharynx and posterior wall of the pharynx were covered with purulent secretion; the mucous membrane looked fairly healthy when the secretion was removed.

I decided to have an X-ray picture taken to demonstrate the extent of involvement as well as the anatomy of the sinuses. My idea of the case was to open all the sinuses as widely as possible; by thus getting free access to the whole nasal chamber, I felt certain the ozoena could be cleared up. The X-ray showed involvement of all the sinuses except the frontals which were absent.

After three weeks preparatory treatment consisting of saline irrigations with post nasal douches of argyrol, I took him in to the hospital. Under a general anesthetic, I opened freely his sinuses on the left side. On opening the antrum the stench was so great that it nauseated me. After completing the operation it was thoroughly irrigated with normal saline. In three days he came to my office and the odor had almost disappeared. I then began irrigations and after each irrigation I either sprayed or applied on an applicator, dichloramine T in oil 1 per cent. One week subsequent to the operation, the odor was entirely gone. The right side was operated on in a similar manner one week later. This side, as I mentioned, contained only liquid pus. On breaking through ethmoids, the pus welled out of the nostril as if an abscess had been opened. I could not determine if the antrum contained any pus but I am inclined to think it did not. The subsequent treatment was saline irrigations and applications of dichloramine T in oil.

In six weeks, the nose was cleaned on both sides with the exception of a slight mucoid discharge which had no odor. There has been no treatment since except an oil spray which he uses himself, and his sister reported two weeks ago that he was just as well as when I last saw him.

DR. HARRIS expressed his regret that Dr. Coffin was not present, as this was a subject in which he was deeply interested. Dr. Coffin believes very strongly in the views expressed by Dr. Faulkner, and Dr. Harris said that he himself had followed Dr. Faulkner's work very closely for years, and felt that there was much truth in his position. There is undoubtedly a focal spot which has to be discovered and removed in order to cure the ozaena. Because one has not been able to do this, does not prove that the theory is at fault. The case reported by Dr. Coffin at a former meeting illustrated this. That patient, a young girl, came into the clinic with both nostrils filled with crusts. Vaccines were tried, but failed to relieve the discharge or the odor. Then the case was restudied with X-ray pictures taken by Dr. Law. His original

report was negative, so far as the sinuses were concerned. This was striking, for it was the only case in the series of pictures of ozaena case taken last winter, with that result. Dr. Law finally revised his opinion and concluded that there was a pathologic condition in the antrum. Then Dr. Coffin tried draining the antrum, and in a very short time all the odor disappeared and there was a very noticeable decrease in the discharge. The girl disappeared in the summer, but returned last winter with a recurrence of the odor and crusts.

DR. HARRIS said that it was his opinion that the failure to secure a permanent disappearance of the odor was not due to the fact that the theory in regard to the antrum was wrong, but that there had been some break in the chain of the technique, so that cure was not complete. Dr. Faulkner was to be congratulated on the permanent cure of the odor in this case.

DR. FREUDENTHAL said that he could not agree with the views held by Dr. Faulkner, Dr. Harris and Dr. Coffin. In his opinion we have to deal with either an ozaena or an accessory sinus disease. Ozaena is produced by different causes, and the subject had been discussed at length before this and other societies. While disease of the accessory sinuses may produce a foetor which is exactly like that of ozaena, it may be removed by treating and curetting the sinuses; but that does *not* occur with true ozaena.

Replying to an inquiry by Dr. Quinlan as what is ozaena? Dr. Freudenthal said that ozaena is an infection produced by the bacillus of Pevez or Abel, an infection of a specific nature (not syphilitic, but specific),—a different kind of infection than is found in the accessory sinuses. In ozaena the accessory are clear, but all the mucous membrane of the nose is affected.

DR. QUINLAN said that he never met with a case of ozaena that was not due to antrum infection. In the past he had been led to believe that it was due to the bacilli of Friedlander, or Pevez which gives rise to a distinct foetid catarrh. We have been groping for a cure of this awful stench, and now we have cured many by antral curetting and drainage. Dr. Quinlan said he had had some cases that had given him a great deal of trouble because he had failed to give them sufficient stimulation by local treatment, but after they were thoroughly cleaned by irrigation and drainage they got well. He had never seen a case where there was not some form of antra or ethmoid trouble. Dr. Freudenthal had had a very large experience with ozaena,—but he had never seen an ozaena that did not have some infection of the sinuses, and treatment was by cleansing, ventillation and drainage. In one instance the patient was a girl who was a nuisance to herself and every one else by the awful stench she brought with her. She had been to everybody and had tried all kinds of treatment, but with the treatment we have described the condition had been cleared up and she is now a comfortable member of society.

It would be interesting to hear from some one who has met with ozaena where the sinuses were in a good healthy condition.

DR. FREUDENTHAL said that he did not claim that the mucous membrane of the accessory sinuses was healthy in all these conditions, but himself and others had opened antra with absolutely negative results in cases of true ozaena.

DR. MACKENTY said that Dr. Faulkner's case was a very interesting one. He did not believe that the specific nature of ozaena was demonstrated. By specific he meant due to virus which in a consatine relation fills all the dicta of Koch.

DR. SMITH asked if he was correct in understanding that Dr. Faulkner believed that the proper treatment of every case of ozaena was to open the antrum.

DR. FAULKNER said that two years ago he was very ambitious to treat a number of adults, and operated on a number of them, opening the ethmoids. It was very difficult to do this in the old cases, for the ethmoids were very thick, and not much was effected. He believed, how-

ever, that nearly all of these cases start in childhood, as a suppurating sinus condition. The ozaena is an accident to chronic cases. This boy had the condition on the left side and not on the right; the affection on the right side was probably more recent than the other. The membrane was somewhat shrunken, and crusts were forming, whereas on the other side there was liquid pus. In his opinion, the antrum is mostly the place the ozaena is located.

He then told of an interesting experience in studying cadavers. Having recently found a subject with an atrophic rhinitis with a thickened bone in ethmoid so that it was difficult to break into. That was probably a late stage of the condition.

These cases should be operated upon early, and if this is done they can be cured, especially the children. Treat sinuses in the nose as you would a sinus in any other part of the body, and they will clear up. A sinus in any other part of the body will get to stinking if it does not have proper drainage.

Foreign Body Case. DR. L. M. HURD.

DR. HURD showed a piece of bone shaped like an arrowhead which had been swallowed point downward by an old lady of 62. He was called to see her an hour or two later, and attempted to pass a bronschoscope. and she gagged and puked it out. It was one of the funniest experiences he had ever had. The bone had lodged just below the sphincter of the glottis.

Laryngectomy for Carcinoma. DR. JOHN MCCOY.

The patient, Mr. Joseph R., a Jewish Rabbi, native of Russia, was first seen about March 10, 1918. He stated that he had begun to be hoarse about a year before, the voice gradually getting worse, and that he had had a slight dyspnoea for several months. A Wassermann was taken and proved negative. He had lost about five pounds in weight during the winter.

Examination of the larynx revealed an infiltration and induration of the left vocal cord and arytenoid, and of the inter-arytenoid space extending over to the right arytenoid. Two small glands were palpated on the left side. The teeth showed a marked pyorrhoea. A diagnosis of carcinoma of the larynx was made, and the patient was sent to a dentist to have his mouth cleansed, which was done in a very admirable manner at St. Bartholomew's clinic.

On March 19 he was subjected to a preliminary tracheotomy and dissection of the glands of the neck on the left side along the jugular vein. This was done under local anaesthesia,—a combination of ½ per cent novocaine, 3 parts, 2 parts of calcium chloride, 2 per cent and ½ part magnesia chloride, 2 per cent. This was injected to reach the superficial cervical plexus on both sides of the neck, and it gave a surprisingly good anaesthesia. The patient did not move during the entire procedure.

A week later, under rectal anaesthesia, the larynx was completely removed, and the patient made an uneventful recovery. He was out of bed on the second day, and on the sixth day was on the roof of the hospital.

Today, four weeks after the operation, he is practically well, his health is greatly improved, and he has gained fifteen or eighteen pounds in weight, and says he feels as though, as he expresses it "he had been let down from heaven."

DISCUSSION.

DR. HURD said that he had presented a case of laryngectomy in the fall, a Rabbi also. He had had to go below a couple of the rings of the trachea in order to get at the lesion, and it promptly recurred. The patient came to town a couple of months ago with an enormous mass, on the sternum, the size of half an orange, and within the last week he had heard that the man finds it very hard to swallow and is going to pieces rapidly.

In doing this work he has used novocaine in salt solution to block off the injection at the transverse processes of the vertebra and had very good results.

In another case of laryngectomy performed within two or three months, the patient has developed a very good voice that can be understood without difficulty. He has not yet developed all the words, but he has a good strong voice. Dr. Hurd said that he had talked with this man over the 'phone, and thought he was speaking to his brother-in-law, for it sounded like a normal voice. He would try to bring him to the next meeting and let the members hear him speak.

DR. QUINLAN told of a case reported by Dr. Solis Cohen some years ago, where the patient learned to speak by compensation of the pharyngeal muscles; the patient would swallow, or rather, hold air in the pharynx, and would by compression of the muscles speak with a fairly good voice.

It would be a great step forward if the men who are doing this line of work would make subsequent reports on their extra-laryngeal operations, since they are the most important in the field of surgery, and it is very desirable that these patients be followed up in order to learn the ultimate results. A comparison of the results obtained by the various members would make a feature of any evening and would be of great value to all concerned in the treatment of new growths, whether by the endo or extra-route.

DR. CARTER said that at one time such a motion had been passed, and that it had been ruled by the section that a notice to the effect that cases presented could be subsequently recalled, be put upon the programs so that these cases could be recalled for observation from time to time. This notice seems to have been removed from the section card.

DR. MACKENTY said that Dr. Quinlan's suggestion was a valuable one and that it was most important that we should get some information in regard to how long these patients live and how much is accomplished outside of relief. Dr. Delavan once read a paper in which he decried the operation of laryngectomy, saying that the operated patients do not live as long as those left alone. Even if they do not live, they get relief. Dr. MacKenty said that he had had many cases that were relieved for a year or two years and then developed carcinoma and died, but they had a year or two of good health, and that was something.

He said he was glad to see that the laryngologists are doing more laryngectomies. The general surgeons have not been very successful. Men like Dr. Arrowsmith, Dr. McCoy, and Dr. Kernan are doing laryngectomies successfully. It would be a good thing to get these cases together and find out how many have survived ultimately after operation.

DR. MCCOY said that the essential point which is sometimes forgotten is that the laryngologist sees these cases first. If he makes the diagnosis and is then able to immediately remove the growth, the chances for recovery are very much better. For instance, he sees an intrinsic cancer just beginning to be extrinsic, just beginning to be in a position to attack the glands. If he is able to apply the operation, he has done more to save the patient's life than the general surgeon, for the general surgeon usually does not get these cases until in a later stage when much valuable time has been lost. Therefore in future the laryngologists should get better results. With the surgeon it is a hit or miss game, but with the laryngologist it is an exact condition, for he knows when it is intrinsic and when it is extrinsic, and he knows what to expect from the operation.

DR. FAULKNER said it might be considered an achievement. It is a remarkable operation but it teaches nothing now to demonstrate an operation. We want to know the proportion of recurrences, and where it recurs. We are not going to accomplish very much unless we get the final results. We hear of old and experienced surgeons that have given up performing laryngectomies, but the operation is much safer now than it used to be and the mortality is very much reduced. The point is, however, does it cure a fairly large proportion of the cases? If not, it hardly seems worth while, after all.

Ten years ago at a meeting of Medical Association in Nova Scotia, one of the prettiest cases of laryngectomy he had ever seen was presented

in which the operation was performed by a country doctor. So we all know the operation is possible but what is the final outcome.

DR. ARROWSMITH said that no one can say that a thyrotomy is a better operation than a laryngectomy; if one does thyrotomy where a laryngectomy is indicated, you don't get anywhere,—and this is where, as Dr. McCoy said, the diagnostic ability of the laryngolgist comes in, for he can distinguish what surgical remedy is indicated n a given case. The onus that laryngectomy now bears is an inherited one. The statistics have been continued from Bilroth's time on. There was a distinct hiatus for a while in laryngectomies. Many laryngologists did the operation fifteen or twenty years ago, but got disgusted with the results and abandoned it. The results were poor because the technique was poor and the after treatment was poor. The statistics of laryngectomy, to be of any value, ought to commence within the last ten years and be continued on. Of course it is impossible to say whether any individual is *cured*,—but if he is not *cured* and dies within eighteen months or two years, during that time he has been relieved and had a new lease of life.

DR. ARROWSMITH said that from his experience in the last five years he was led to take a very decided issue with the stand taken by Semon when he was heartily advocating thyrotomy, and that which Dr. Delavan takes,—that a man without a voice is out of touch with his environment and might better be dead. That is a rather sentimental way of looking at the matter and it is not justified by the facts, for in many of these cases the patient has as much comfort as a blind man or a man with one leg or arm. Of course in putting up to any patient the choice of an operation of this sort, it is only fair that he should be told both sides of the picture. Dr. Arrowsmith said that he never had seen a more cheerful patient than the one presented by Dr. McCoy, who evidently was glad to be alive. He further hoped that the laryngologists would continue with laryngeal surgery until they reach a point where they can count with reasonable accuracy upon what may be expected, and choose the appropriate cases for either laryngectomy or thyrotomy. We may hope to get better results in the future, when the general surgeon stops doing this operation, and these patients all come to the laryngologist, who alone is qualified to select the necessary operative method.

Ethmoiditis, Frontal Sinusitis, Diplopia. DR. T. J. HARRIS.

DR. HARRIS said that he would like to report an unusual complication of an intranasal ethmoid operation, for the sake of putting it on record.

The patient had had two previous ethmoid operations in other hospitals, and finally came to the Manhattan Eye, Ear and Throat Hospital with a history of pain and discharge accompanied by odor.

Clinical examination showed an ethmoiditis with probable frontal sinusitis on both sides. He was admitted to the Hospital for exenteration of the ethmoid cells. On opening the ethmoid, Dr. Harris said he encountered what Dr. Faulkner had referred to,—an atrophic condition of the cells and what appeared to be either an absence of the planum or an atrophic condition, for the chisel at once entered the orbit. In removing with forcep the ethmoid labyrinth, the patient experienced at first no pain, but on the second introduction of the forceps the patient complained of a sensation of having the eye-ball struck. Nothing was taken out, in the spot complained of and the operation proceeded. The cells were exenterated, and so far as the pain and discharge were concerned the patient was relieved; but when next seen he stated that he saw double when he looked upward. The eyes were examined and it was found that not the superior oblique muscle had been injurd, as was suspected, but the external rectus muscle. Dr. Harris said that never before had he heard of such an injury. The eye specialist gave a favorable prognosis in the case.

DISCUSSION.

DR. MACKENTY asked what part of the labyrinth Dr. Harris was working on when the accident occurred.

DR. HARRIS said that it was pretty well back.

DR. MACKENTY said that it was a very rare condition. He had never heard of anything like it before.

ABSTRACT OF THE

PROCEEDINGS OF THE FORTIETH ANNUAL CONGRESS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

Held at Atlantic City, New Jersey, May 27-29 1918.

By EMIL MAYER, M. D., New York, *Abstract Editor.*

The president, Dr. Thomas H. Halsted, Syracuse, New York, called attention to the fact of his fortieth anniversary comprising practically the whole period of modern laryngology.

He paid a tribute to the memory of Dr. E. Fletcher Ingals, a founder of the association, who died but a few days before the meeting, and who remained to the last an Active Fellow, furnishing last year one of the most valuable papers of the meeting.

He welcomed, also, Dr. H. S. Birkett of Montreal, one of the fellows of the association who, responding promptly to his country's call, had spent four years in active service, rising to the highest rank and responsibility.

Each fellow of this association feels a personal pride in these achievements.

Of an active membership of eighty-two, thirty per cent are in the active Naval and Military Service of the United States, which is a very creditable showing, considering the average age of its fellows.

The speaker then presented for the subject of his address:

A DIAGNOSTIC CLINIC FOR PAY PATIENTS.

While organization of hospitals for the care of ward cases and dispensaries for free ambulatory cases have been well organized, there has been no combined arrangement for the care of private patients, hence it frequently happens that a diagnosis cannot be made because of the expense involved in calling in as many physicians as the case really demands.

Ofttimes the patient seeks relief by consulting various physicians of his own volition, producing disappointing results.

It sometimes happens that the right physician is accidentally consulted, and the cause of the obscure symptoms found, with a resulting cure.

It is for the profession to devise the means of correcting this very grave fault. As a result there have arisen many institutions where the medical staff is comprised largely of specialists of different branches. While some of these institutions are of different branches. While some of these institutions are excellent in every way, the great majority are not of this character, and as long as they are purely commercial organizations they never will be.

The speaker said that the scheme devised, worked out and practiced for nearly three years by the Clinical Club of St. Luke's Hospital, San Francisco, offered the best foundation from which to build a diagnostic clinic, and that it had met this particular situation.

The medical staff of this hospital consists of twenty-four full staff members, four consultants and ten assistants, with an excellent clinical laboratory and complete X-ray department.

In the hospital to which the speaker is attached, the first choice was given the regular staff, after which the assistants were given an opportunity when vacancies arose. The staff was divided into two groups serving on alternate months, with a third group known as the auxiliary group, made up of those specialists whose services would not be required in every case. The latter become available in any case in which the group chairman thinks such service desirable.

The chairman is responsible for the history of the case, and after his examination is made arranges for the visits of the other members of the group, together with such members of the auxiliary group as he may desire. A supervising nurse keeps the records and attends to the financial end of the work, sees the specimens are furnished the laboratory, arranges the details of the physician's visits, is present at all examinations, typewrites the notes and attends the general consultations, taking the minutes and transcribing them.

After all examinations, clinical and laboratory, have been completed, a general consultation of all who have had to do with the case is held, and every possible diagnosis arrived at, the physician referring the case being present and participating in the consultation.

A satisfactory conclusion having been reached, a report is sent to the referring physician, a second copy to the patient or his responsible relative whenever this seems desirable, and a third retained in the files of the clinic.

Only cases that are obscure and complicated and apparently cannot be diagnosed by the average physician, are accepted by the clinic.

A minimum fee of $50.00 and graded upward, according to the patient's financial situation, is charged. Such fee includes the services of the medical man and of the laboratory and X-ray departments, as well as of the supervising nurse. In addition, the hospital charges regular room rates for time occupied.

The portion of the fee remaining will be finally divided equally among those who have examined the case, to be received by them individually or be voted by them for the purchase of new equipment for improving the service of the clinic of the hospital, the latter being expected to be the disposition of the funds for some time to come.

In rendering this service they will themselves receive much knowledge and should benefit greatly through these examinations and consultations, adding materially to their diagnostic ability.

The hospital will benefit by the steadily increasing efficiency of its staff.

Finally, the speaker called attention to the work of its committee in the National Council of War Defense, and requested a quick response to the appeal of the Surgeon General for voluntary medical service to meet the demands of the drafted army.

Each man must weigh the matter for himself, and putting aside any argument and all questions of personal advantage, reach a decision that he will be willing to submit to the scrutiny of his fellows and abide by their decision. Those who can go are to be congratulated; they are to be envied; they are the favored ones of the profession. A doctor who in this emergency can conscientiously go and fails to respond to his conscience and his country's call, putting a selfish profit first, is not to be envied but to be pitied.

To commemorate the fortieth anniversary of this society, a historical review of the early days of laryngology was read by the honorary president, Dr. J. Solis Cohen, of Philadelphia, followed by Dr. D. Bryson Delavan of New York.

The scientific program then followed with the papers and discussions here presented.

Report of Some Interesting Cases of Vincent's Angina. CLEMENT F. F. THEISEN, M. D., Albany.

There are two distinct clinical types of the disease, one form to be differentiated from diphtheria and other pseudo-membranous anginas occurring almost exclusively in young people, while the other form has a localized ulceration simulating syphilis occurring mainly in adults, usually, in the writer's experience, associated with carous teeth, especially in those whose mouths are not well cared for.

The odor is distinctive and characteristic, and if not promptly treated extensive ulceration of the fauces occurs with fatal ending.

The writer has had two fatal cases. One previously reported in 1912, and the other a recent case in a man thirty-two years of age. The uvula

and part of the soft palate had been practically destroyed, and there was deep ulceration of both tonsillar surfaces and of the gums around the last molars. The ulcerated surfaces were covered with a tenacious pseudomembrane. The molar teeth were badly decayed, and the gums bled easily when touched with a probe. The odor was so bad that it rquired a good deal of courage to examine him. He said the condition had been going on for several weeks, and he had received no treatment He had been using a mouth wash of peroxid and water.

He was in an extremely weakened condition, because the pain in swallowing was so severe that he had not been able to take much nourishment. No history of syphilis could be obtained. Smears from throat swabs verified the diagnosis of Vincent's angina.

He was given a strong solution of potassium chlorate, powdered alum, carbolic acid, glycerin and water, to be used as a gargle, and locally the ulcerated surfaces after cleaning were swabbed with a saturated solution of methylene blue in alcohol. He was given K. I. in large doses. This is always administered in the writer's cases, whether a history of syphilis is obtained or not. Blood count showed a moderate leucocytosis. He failed steadily in spite of all efforts, and died about two weeks after he was first seen. The larynx was not involved in this case.

Salvarsan was used both locally and intravenously without any appreciable effect. No autopsy.

Pure alcohol swabbed on the ulcerated surfaces is also extremely valuable. The greatest difficulty is in having the severe cases get enough nourishment, because the pain in swallowing is often so great. A solution of orthoform in olive oil, swabbed on the ulcerated surfaces before meals, affords a certain amount of relief. A spray of carbolic cocain in the worst cases gives more relief than anything else, if used a few minutes before meals. In some of the adult cases of the ulcerative type we are probably dealing with a combination of syphilis and Vincent's, even when we fail to obtain a history of syphilis. That may be one reason why salvarsan acts so promptly in some cases, although the concensus of opinion would seem to prove that the arsenic preparations do have a specific action. He has known cases of this kind in which there was a positive Wassermann (with no syphilitic history), with the typical clinical and microscopc evidence of Vincent's.

DISCUSSION.

Dr. Christian R. Holmes, Cincinnati: I should like to ask as to the temperature of the patients; whether blood cultures were made in the two severe cases, and how he used the alcohol treatment—by applying it locally or not. In Camp Sherman we had quite a run of Vincent's angina in the soldiers; but none of them were seriously ill. All were the kind of cases that yield readily to treatment.

The treatment was nitrate of silver bead applied in the crypts, using it on a heavy silver wire, the patients using gargles of permanganate of potash and peroxid of hydrogen. Gargling with vinegar diluted with equal parts of water was tried lately and appeared very effective.

Dr. Lewis A. Coffin, New York City: We have had many papers on this subject. From these it is evident that patients have gotten well under various forms of treatment. It strikes me therefore that if these cases are seen early, recovery may be looked for, if any of the various methods be applied vigorously. The speaker referred to a case which he treated twice daily for about a week, when he told the patient that he was practically well and need not return for forty-eight hours. The same afternoon, after sitting out during a ball game, he was seized by a chill, which was the ushering in symptom of a typical attack of follicular tonsillitis.

Col. Herbert S. Birkett, M. D., Montreal, Canada: Perhaps there is no condition which is more prevalent than Vincent's angina amongst British troops. I seldom saw it in any of the colonial troops, and this I think arises from the fact that the mouth conditions are very well cared for amongst the Canadians. The condition was found not only on the ton-

sils but also on the gums, even as far forward as the incisor teeth; it would seem as if this was due rather to direct infection. My experience with this condition is that it yielded rapidly to treatment consisting of an application of hydrogen peroxid, liquor arsenicalis and vin ipecac.

DR. EMIL MAYER, New York City: It is relatively easy to make a diagnosis of Vincent's angina when there is an exudate and you can make a smear; but I saw some days ago an instance in which the diagnosis comes to me as a very great surprise. This was in the case of a lady who took good care of her teeth, and was a woman of much refinement. She consulted me on account of a spasmodic cough. She had a skin affection for which she was being treated. I saw a simple mild exudate on her soft palate, which I felt to be an evidence of the skin infection on her mucous membrane. I felt that she had a similar condition on her trachea, because of the negative result of all of the examinations. Her sputum was really more saliva than anything else; and I was intensely surprised at the report that it was full of the fusiform bacilli. There was an absence of anything like a membrane, yet the condition occurred, and in a person not neglectful of her teeth or anything else; so it probably occurs much more frequently than we really have a right to expect in this class of cases.

The treatment that has answered best for me has been the local application of salvarsan, together with the iodin and glycerin, which I recommended at the time the first case was reported by myself in the English literature. I have never seen the severe fatal cases. Arrowsmith reported a case in which the patient nearly died. I think that it behooves us to be on the watch, because we may probably discover cases where we do not dream of them.

DR. GREENFIELD SLUDER, St. Louis: Dr. Theisen spoke of a solution of methylene blue in alcohol alone. I am glad to know that; but I have also used the methylene blue in powder and in aqueous solution, and likewise found it to answer the purpose.

DR. CLEMENT F. THEISEN, Albany, closing: Replying to Dr. Holmes' question regarding blood cultures, I would say that we did not take blood cultures, but we took blood counts; and the leukocytes in both cases were increased. I forgot to mention the increase in the polynuclears, and also to mention a method of treatment—a combination of old drugs which is practically a specific, either as a gargle or in the spray form. This combination consists of potassium chlorate, powdered alum, glycerin and water. It works like a charm. The alcohol is used locally.

Report of Some Cases Mostly Traumatic, of Serious Damage to the Nose and Accessory Sinuses, Operated Upon Externally, With Excellent Cosmetic Results. JOHN R. WINSLOW, M. D., Baltimore.

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DISCUSSION.

DR. JOHN E. WINSLOW, Baltimore: I should like to hear from Dr. Coakley or some of the other experts, as to the proper plan of treatment under such conditions as I have described, where there is necrosis of the cerebal wall of the frontal sinus. How long are we justified in waiting for nature to attend to it? Did I wait too long, or was I too conservative?

DR. CORNELIUS COAKLEY, New York City: When I have operated on the frontal sinus I have never found actual necrosis of the wall unless there had been syphilis. It is unusual for me to find such a condition. What I have found is that in cases that have been operated on previously, there has been a temporary cessation of the discharge with fistula formation. When I have opened up the frontal sinus in these cases it has not been infrequent to find areas of very marked softening in the bone, such as one finds in a mastoid operation at the borders, when one has gotten back of where the large cells are and come to the cells just between these and the cancellous bone. I think that there is no reason why that bone should not be regarded as infected bone, just as in the mastoid region; and I feel that neglect to clean out this diseased bone and get down to healthy bone, whether in the anterior wall or anywhere else, is not good

surgery. You should get to good bone, even if you expose the dura in the frontal region.

In one instance I found such a degree of softening of the posterior wall that I felt sure that I should find exposure of the dura and epidural abscess. Fortunately, however, that was not the case. I went through an area of three-eights of an inch of vascular soft bone before coming to what must have been a very thin area of good bone at the posterior wall of the frontal sinus. The soft bone was all cleared out. A drain was placed in the wound for a short time, leading to the nose. The wound was sewed up, as in the ordinary Killian operation, and the patient has made—temporarily at least—a good recovery. The operation was done three months ago, and up to the present time there has been no recurrence, although there were two or three before that. Soft or diseased bone, or any other bad bone in the frontal sinus, should be treated just as you are in the habit of treating the same kind of bone in mastoid or any other region.

Dr. Lewis A. Coffin, New York City: I should be much less afraid of a curette than of leaving diseased bone in a patient. As to whether the posterior wall being necrotic and perforated is an invariable sign of syphilis, I have grave doubts. I have seen this condition in comparatively few cases; one case was in a child of six years having perfectly healthy parents. In reporting that case I spoke of another that I had previously seen in which the anterior wall was so soft that I removed it with a spoon curette and stated that I did not see why the posterior wall should not be affected by the same pathologic process as the anterior wall. A case somewhat similar to the one just reported comes to mind. A young woman was riding in an automobile when the peculiar accident happened. The shaft of a wagon to which a horse was attached entered the antrum through the middle of her cheek, fracturing the floor of the orbit and the anteronasal wall. She had been under treatment for some time when I saw her. Removing a pad of gauze from her face revealed a stream of pus pouring from the open wound in her cheek. I made an incision over the eyebrow down over the ridge of the nose and the center of the skin covering the columnar cartilage and dividing the upper lip in the median line. Turning the flap well back gave a good exposure of all the diseased parts, which were thoroughly cleared out. We and our patients are fortunate in the kindly way in which incisions of the face heal. In this case there was practically no scarring except where the shaft of the wagon pierced the cheek.

Dr. George L. Richards, Fall River, Mass.: The ability of the face to heal is very remarkable. I recall that some years ago I had a patient who was riding a bicycle down a hillside when the chain broke, and he was pitched suddenly forward in such a way that he tore off the front of the face from the nose to the chin, and in addition got all the dirt of the street into his wounds. A number of operations were necessary, but in the end a fairly good looking face resulted.

Dr. T. Passmore Berens, New York City: It seems to me that this is the same condition that we find in the mastoid of bone that is not syphilitic but is simply an unusually firm hard bone. We have to be patient, and let it heal. A number of years ago I mentioned the mild pressure that was needed in these cases, such as would come from a pince nez with long horns pressing the nasal bones together. It seems to me that if he had exerted a slight constant pressure, such as you get from a pince nez, he would have overcome that broadening of the nose. I merely mention this to accentuate the benefit of constant mild pressure.

Dr. Bryson Delavan, New York City: In suppurative conditions of the nasal sinuses if there should be any question of the existence of syphilis operative work must be undertaken with caution, since under antisyphilitic treatment many cases have been cured or have satisfactorily improved without operative interference. Many cases could be quoted to prove this. It may be said, therefore, that where there is a positive Wassermann reaction wait, if possible, until a course of specific treatment has

either cured the sinus disease or made the necessity for operation clear.

DR. JOHN R. WINSLOW, Baltimore, closing: I do not want to leave anyone under the impression that I am ignorant enough to leave soft bone and close it in the wound. It was not soft, but hard as steel, and I curetted it three times as much as I thought was safe. I acted not only on my own best judgment but also on the advice of several friends.

Carpet Tack in the Right Bronchial Tube of a Patient for Two Years With no Pathologic Symptoms; Exhibition of Plates. DUNBAR ROY, M. D., Atlanta.

This occurred in a female aged twenty-eight years. X-ray showed the tack in the right bronchus between the seventh and eighth ribs. Its removal was at once attempted by upper bronchoscopy and failed. Tracheotomy was performed the next day, the bronchoscope passed, but he was unable to grasp and dislodge the tack, and the tracheotomy wound allowed to heal.

Five months later a bronchoscope was easily introduced by upper bronchoscopy by Dr. R. C. Lynch. The tube was too short and the foreign body could not be removed.

The patient has been entirely well since then, now two years, increasing in weight. X-ray photographs were shown showing the tack still in situ.

The writer presents records of a number of cases of this character, many of them without producing untoward symptoms.

DISCUSSION.

DR. T. H. HALSTED, Syracuse: In connection with this case of Dr. Roy's, I should like to report the recent removal of a foreign body from the right bronchus occurring in a girl of ten years. This child while playing, having occasion to put her pocket handkerchief to her mouth, inhaled a metal clip, shaped somewhat like a fish hook, which had been in her pocket. There was an immediate attack of dyspnea, lasting a few moments, but within a few minutes no symptoms beyond a sensation as of something sharp lodged in the throat remained. A physician saw her within ten minutes, at which time all symptoms had disappeared, beyond the pricking sensation. He assured her that she must either have expectorated or swallowed it. She had no trouble that night, but the next morning, the sticking sensation referred to the neck continuing, she consulted another physician, Dr. Swift, who had an X-ray made. This disclosed a foreign body in the right bronchus. She was referred to me for operation. Under general anesthesia I soon located the metallic object by upper bronchoscopy and made repeated but unsuccessful efforts at removal. The x-ray failed to tell whether the sharp point was directed up or down, and it could not be determined by direct inspection. The next morning stereoscopic plates were made, and showed the foreign body to be in the right bronchus, sharp point upward. Under ether, the trachea was opened, and under lower bronchoscopy the foreign body was, after two hours' work removed. It was in the second division of the bronchus, firmly wedged, but by manipulation it was finally removed by a long alligator forceps with but little damage to the bronchioles. It was a flexible steel clip used in clothing stores for holding cardboard price marks, shaped like a sharply bent fish hook, the shaft being three-fourths of an inch long and the pin portion half an inch. It, together with the stereoscopic plates, are presented for examination. The tracheal wound was at once closed, the child made an uneventful recovery, leaving the hospital in eight days. It was the most difficult case of its kind I have met with.

Concerning Atrophic Rhinitis and Ozena; With Report of Case Referred to Last Year. LEWIS A. COFFIN, M. D., New York City.

The speaker believes he was the first to suggest that the foul odor which so frequently accompanies atrophic rhinitis and constitutes the disease known as ozena has its origin and is caused by a chronically diseased and poorly drained antrum. Since making this statement others

have reported to him that they had treated several cases in this manner with the same excellent results.

In one of his cases there was no improvement whatever, although operations had been performed on both antra.

He was unable to account for the failure in this instance.

DISCUSSION.

DR. CORNELIUS G. COAKLEY: It seems to me that all the odor should not be attributed to disease of the maxillary sinus. If the patient had pansinuitis I do not see why it should be cured by washing out the maxillary and leaving the same pathologic process in the ethmoid and frontal. Of course you do not get so much odor from them, but I should think you should clear them up as well as the maxillary, and I suggest that as the cause of the continuation of the odor.

DR. GEORGE L. RICHARDS, Fall River: I have had good luck in using the chlorinated oil in the type of case that Dr. Coffin has been speaking of. It is purely empirical. I used it thinking that it would do some good to place it on the surface and hold it there. It was done with the swab or spray, and not after opening the antrum. I have not been converted to the belief that all or even the majority of cases of atrophic rhinitis are due to antrum disease.

DR. THOMAS H. HALSTED, Syracuse: After seeing Dr. Coffin's cases last year, I treated a case with the foulest odor I ever encountered. I did a double antrum (simple Mikulicz) operation on her. The odor was simply unbearable and unendurable. Nothing further was done. The saline douche that she was using was kept up. I did not see her, after she went home, for a year. Then the odor had entirely disappeared. There was no odor from the nose whatever, and no other treatment had been carried out during this time but the washing out. In three of five other cases there was absolutely complete cessation of all odor. It was one of the most satisfactory operations of any that I have done. Of three of my five cases, the odor of which was very bad, was entirely relieved by the antrum operation; in the other two it was greatly lessened. There was a marked diminution in the amount of crusting in the nose. The odor comes, I am satisfied, more from the gas from the antral secretion than from the nasal scabs, though doubtless some comes also from the other sinuses, the frontal, ethmoid and sphenoid, when they are involved, and their treatment, by ventilation through operation, will be required in such cases.

DR. HENRY L. SWAIN, New Haven: What did you find in the maxillary sinus?

DR. THOMAS H. HALSTED, Syracuse: Nothing much; the operation was done by simply opening through the nose. I was not able to see as you would with a Caldwell-Luc. I made a good big opening through the nose and got ventilation and prevented the retention of secretion and pus.

DR. SWAIN, New Haven: Did the X-ray show anything in the antrum before operating?

DR. HALSTED, Syracuse: There was no X-ray made.

DR. SWAIN, New Haven: Did the transilluminator?

DR. HALSTED, Syracuse: Yes, and I did one of these operations recently on a nurse where the transillumination was clear.

DR. SWAIN, New Haven: You operated in spite of that?

DR. HALSTED, Syracuse: Yes.

DR. GREENFIELD SLUDER, St. Louis: The point that I should like to make is that if Dr. Coffin has established the opening of the antrum for the cure of ozaena and the stench of an atrophic rhinitis, it seems that it is one of the greatest advances presented to us for a long time. Last year I asked the question, which was not answered, "What happens in a case of atrophic rhinitis when the olfactory fissure is crusted all around?" There is an antrum open, but the atrophic process is as active and destructive there as elsewhere.

DR. HENRY L. SWAIN, New Haven: In speaking to Dr. Sluder's remarks, I was endeavoring to bring out the proposition that Dr. Coffin has brought

before us, because he will be accused of saying that he cures atrophic rhinitis by opening the antrum. He does not cure the rhinitis, but does cure the odor, as Dr. Sluder says. As I said at the last meeting, it was a most radical remark on Dr. Coffin's part, and if it bore truth as promised it was really an epoch-making suggestion, and I rise to confirm Dr. Sluder.

DR. GREENFIELD SLUDER, St. Louis: I forgot to state that I am going to try it when I get home.

DR. HANAU W. LOEB, St. Louis: It is obvious that if there is any process of this nature in the antrum, by securing good drainage there will naturally be improvement in the odor, just as I have found that by clearing out the ethmoids a particular odor that may accompany the process will improve or disappear. I feel that Dr. Coffin's contribution in this respect constitutes simply calling attention to the fact that the antrum being the largest cavity connected with the nose and most intimately associated with its function, the greatest opportunity for the development of these crusts is offered by it whenever it is subjected to the action of the putrefactive bacteria. I do not see why it should be affected in all the cases, or even in more than a fair number of the cases, because, according to my information and observation, the antrum is not more often affected than other sinuses.

DR. HENRY L. SWAIN, New Haven: If the people will take enough pains to cleanse the nose properly most of them can remain inoffensive to their immediate environment. That would not be the case if the odor depended entirely on the condition of the interior of the antrum. So, although I am particularly friendly to Dr. Coffin's suggestion, I am sure that we are not going to cure all cases by opening the antrum, because all cases are not due to that. We are not saying that he does not do it, but we hope to do equally good work. In an antrum where I could see in pretty well through a large natural opening between the antrum and the nose, where there was an atrophic process in the nose, we could see in the antrum that the mucous membrane lining the antrum had the same process going on in it as in the nose. That is, there were masses of atrophic material lining the entire cavity of the antrum. If that could exist once, it could many times, and that explains why in some of these cases in which, as Dr. Halsted discovered, where there is no darkness under transillumination, there will be going on the same process as in the nose, which can be relieved by opening the sinus, and only by doing so.

DR. T. HALSTED, Syracuse: In three of my cases the odor was extreme. In the other two, the odor is much relieved. It is simply remarkable what improvement has taken place. I can only say in a general way that there was a diminution in the amount of crusting. I do not believe that all the odor comes from the crusting. I believe that it will be proved that it is from the maxillary sinus as well as the ethmoid and frontal.

DR. GREENFIELD SLUDER, St. Louis: If the author can locate the antrum as the point from which the stench proceeds, that is the most valuable contribution that we have had for a long time.

DR. L. A. COFFIN, New York City, closing: Dr. Sluder has given a perfectly proper definition of ozaena as "the odor accompanying atrophic rhinitis." Then he talks of seeing scabs about the olfactory fissure—but does not state that there is any odor or ozena from these particular scabs. We are not discussing scabs but an odor known as ozena.

DR. COAKLEY asks why the antrum rather than the other sinuses? The antrum is practically the only sinus I have ever opened from which was emitted a foul odor. This occurs frequently and is due to the anatomic structure of the antrum. Drainage is at the top, while in most other sinuses drainage is from the bottom.

The case of a young lady comes to mind. She had extreme atrophy, no inferior or middle turbinates in sight, nose much bescabbed, and when she first came emitting a foul and stinking odor. Her antra having been opened and cleansed, the odor (ozena) has entirely disappeared, while undoubted disease of many of the other sinuses persists, as does

scabbing, although not to the same degree as before the treatment of the antra.

She was one of the cases seen by Dr. Halsted. Another was a young boy about twelve years of age. Apparently he had not only marked disease of the antrum of one side but marked ethmoiditis as well—nose full of crusts and ozena. I opened and treated the antrum, purposely leaving the ethmoids untouched. The odor disappeared.

As to the value of the x-ray in diagnosis: It is a help, by no means infallible. Personally, I care little for another's reading of the negative. Now, these are the thoughts which I wish to impress and leave with you: First, that the odor of ozena comes frequently from disease of the antrum, and is relieved by the treatment of the antrum. Second, please remember that I have today reported a case not so relieved.

I trust that you will all try the treatment, as has Dr. Halsted, and that you will bear in mind that we do not expect 100 per cent perfect in 100 per cent of the cases.

Three Unusual Nasal (Sphenopalatine) Ganglion Cases. GREENFIELD SLUDER, M. D., St. Louis.

The usual neuralgic picture is pain in and about the eyes and the upper jaw, the teeth, extending backward about the temple under the zygoma into the ear, making earache; and then backward into the mastoid; and severest usually at a point two inches back of the mastoid, to extend into the occiput, the neck, the shoulder; into the shoulder blade, and somtimes the axilla and breast, and frequently down into the arm, forearm, hand and even to the finger tips.

Added to this symptom complex, frequently is found a sneezing and watery secretion more marked probably in the morning, frequently extending through the day; a red external nose, with tearing eyes, photophobia, and a sense of discomfort in the eyes difficult for the patient to describe.

Occasionally, however, are added unusual features to this clinical complex. These cases record phenomena that at present are unique and cannot be explained. They may be recorded as facts.

The first case was relieved of the dizziness and the headache after cocainization of the ganglion, the headaches returning in six hours. The patient passed from further observation.

In the second case headache ceased, but as an effect of cocainization the right eyelid drooped very perceptibly to obscure probably half of the blepharospasm, and the pupil contracted to one-half of its fellow of the opposite side.

The third case was one of a right sided blepharospasm of great severity, and was a post-ethmoid sphenoid suppuration with polyps on the right side.

Cocainization of the right nasal ganglion relieved the blepharospasm for a period of three hours, and injection of the same ganglion was followed by relief of the spasm for three to six hours.

Operating on the ethmoids and sphenoids did not relieve the spasm.

The left side was then operated upon without relieving the spasm, although the right eyelid opened after injection of the left ganglion.

DISCUSSION.

DR. EMIL MAYER, New York City: We are much indebted to Dr. Sluder for calling attention to these nasal ganglion cases and what may be done for them. I recall the case of a young woman whom I had successfully treated for dysmenorrhea by intranasal treatment. She came to me later, suffering with headache, and I cocainized the nasal ganglion on the side that she had her headache. An hour afterward she telephoned to say that her headache had completely ceased. She was so rejoiced that she felt she must let me know at once how much better she was. She remained well for some months and then had a recurrence. She came again and had an application made to the ganglion on that side, and it has remained well ever since. Though I cannot explain why we

can get such wonderful results in dysmenorrhea cases by a treatment which must perforce be called empiric, some of us may at some time be able to understand and explain it. The word empiricism must apply in this instance, as in the other instance of Dr. Coffin's, where we are unable to give a true scientific reason for the things that we do. The result is there, and the patient is happy, and that is all that can be said.

DR. HENRY L. SWAIN, New Haven: I have tried to cocainize the ganglion neuralgic cases, and I want to confirm the speaker in what he has observed on the question of dizziness, which I have been unable to explain any more than he has. One of the cases that I cocainized for headache also suffered from vertigo, and it was relieved entirely during the period of her cessation from pain, which was only two or three weeks. I made another application of adrenalin and cocain in combination, and she was relieved for so long that she did not think it necessary to have any further treatment of that kind. That was a year ago. I have not seen her since, and do not know whether she is still well or not.

The question of why we have pain in these sinus cases is most interesting. I have had a number of cases of severe pain with disease which I thought was well and have had an x-ray picture taken to learn the exact state of things. The neuralgia has ceased in five instances immediately after taking the picture, so there must have been something in the exposure to the x-ray that broke up the nerve complex in some way and caused the pain to stop on the spot. Previously I had been treating the case without seeming relief. Immediately after taking the picture the pain stopped. This occurred in several instances in persons that I saw every day, the pain ceasing thereafter entirely. The question arises, could this fact be put to some therapeutic use, and be of some therapeutic value? Shall we expose patients with this type of neuralgia to the x-ray to cure them? That question I leave to you to answer, but I do not think that this occurrence was accidental in all five cases in which there was no sinus disease but neuralgia and in which following the x-ray exposure the pain disappeared entirely.

DR. GREENFIELD SLUDER, St. Louis, closing: The case that Dr. Mayer has described was, I fancy, one of those in which the ganglion lies particularly close to the surface. That sometimes happens, and such a case may be exploded into the most violent lower-half headache by an ordinary coryza. Cocainization, in that case, is curative, not palliative merely.

DR. SWAIN'S observation that an x-ray relieved headache is exceedingly interesting.

Report of Syphilitic Necrosis of the Intermaxillary Portion of the Superior Maxilla. LIEUT.-COL. CHARLES W. RICHARDSON, M. C. N. A., Washington.

The history of a young man, twenty-six years of age, married, stock clerk, is presented. First seen on April 16, 1917, on account of intense pain in the floor and lateral wall of the left nasal chamber. There was no swelling or inflammation, and no interference with the function of the left nasal chamber.

The patient had shortly before been operated on, or stated that he had been operated on for a mild affection of the septum, although there was no evidence of such operation having been done. The patient's condition was attended by great suffering.

After a few days, during which transillumination and x-ray examinations were made of the incisors and lateral bicuspids, as well as of the left antrum, all of which were negative, a Wassermann was made which resulted in a double positive.

As there was great tenderness over the upper incisors, patient had four of these removed. Salvarsan was given. In spite of this the intermaxillary bone separated by rapid necrosis in one mass.

The important and salient features of this case are:

1. Severe and continuous pain without any objective signs.
2. The severe necrosis without any inflammatory swelling.
3. The complete limitation of the necrosis within distinct anatomic borders.

DISCUSSION.

DR. HENRY L. SWAIN, New Haven: In a similar case to Dr. Richardson's, where the patient had most severe pain, after proper internal and local treatment, I removed a sequestrum fully as large as that which he us. A fistulous tract led through to the floor of the nose. The entire premaxillary bone came away, but complete healing resulted.

Cyst of the Thyroglossal Duct—A Report of Two Cases. OTTO T. FREER, M. D., Chicago.

The anatomic origin of these cysts is described by the author. Two cases are reported.

Case 1.—Male, began to have difficulty in swallowing, and at the same time noticing a swelling in the region of the thyrohyoid space. When first seen, on April 19, 1915, the swelling had increased and there was an increase in the difficulty in swallowing, so that to make solid food go down he had to try twice and help with a mouthful of water.

Examination showed a normal nose, pharynx, larynx and esophagus. In the thyrohyoid space a cyst was felt seemingly lying underneath the sternohyoid muscles. It was of walnut size and could be felt to interfere with the ascent of the thyroid cartilage to the hyoid bone when the patient swallowed—that is, the cyst became pinched between the two structures.

Operation on June 17, 1915. After dissecting off the superficial fascia and platysma muscle from a vertical median incision, a strong, tendinous layer of fascia was exposed that was attached to the lower border of the hyoid bone above and to the border of the thyroid notch below, so firmly binding down the cyst between itself in front, the median thyrohyoid ligament behind and the thyrohyoid membrane laterally, the cyst being unable to escape from the compartment in which it was confined when pinched during swallowing. When exposed by removing the fascia described, the wall of the semitransparent cyst was found to be so frail that it could not be seized lest it tear. This made the dissection tedious, as only the tissue surrounding the cyst could be held with tissue forceps, the cyst being held aside with dull retractors. The cyst was removed unhurt from its bed and was found to end above in a fibrous pedicle that lay against the posterior surface of the body of the hyoid bone and could be followed as high up as its superior border at the level of the hyoepiglottic ligament. Removal of the cyst exposed the median thyrohyoid ligament to view, this ligament forming the posterior wall of the compartment in which the cyst had been confined.

Microscopic section of a part of the cyst wall showed it to be composed of fibrous tissue lined with a layer of leucocytes intermingled with numerous, evenly distributed giant cells. There was no epithelium. The cyst contained a clear fluid. The removal of the cyst enabled the patient to swallow normally.

Case 2.—The second patient was a woman of thirty-two years, first seen on November 8, 1916. She had a swelling over the larynx since her tenth year. Iodin was injected into this swelling during the summer, and since this was done the swelling had gradually increased in size.

Examination showed a spindle shaped cystic tumor of the size of a walnut in the prelaryngeal region. The upper pole of the cyst could be felt to dive under the center of the body of the hyoid bone; its lower pole dwindled to a cord that could be felt to reach the region of the thyroid isthmus.

Operation under cocain on November 17, 1916. It took two hours to dissect out the cyst, as only the most delicate handling could prevent its rupture, and inflammatory changes caused by the iodin injection had made the cyst wall grow to its surroundings, so that the thyrohyoid and sternohyoid muscles were firmly joined to it in front. The upper end of the cyst ended in a cord that extended upward under the body of the hyoid bone to its upper border, where it was lost in the hyoepiglottic ligament. Below, the cyst ended in a similar cord that joined the isthmus of the thyroid gland. When freed from its bed, just before

removal the cyst ruptured, thick pus escaping, a cold abscess probably caused by the iodin injection.

After the cyst was taken away, the thyroid and cricoid cartilages, upon which it had lain, were bared to view.

In the first case the possibility of the cyst being one derived from a subhyoid bursa might come into question. However, the pedicle which formed a cord passing up under the body of the hyoid bone in the location of the thyroglossal duct, showed the thyroid origin of the cyst.

In the second case the entire thyroglossal duct, expanded to a cyst in its middle, was present to prove the correctness of the diagnosis.

Report of a Case of Large Osteoma Involving the Right Frontal Sinus and Uncovering the Adjacent Brain. JOHN F. BARNHILL, M. D., Indianapolis.

This occurred in a girl of sixteen years who first noticed a swelling on her forehead a year previously, which caused no symptoms, but was increasing slowly in size. The speaker was consulted because of deformity.

X-ray plates showed an oval tumor involving the right frontal sinus, with absorption of the external and internal plates of the sinus walls.

Operation August 21, 1917. An area of half an inch in circumference was wanting in the frontal wall of the sinus, and through this the hard glistening tumor presented.

The remaining portion of the frontal wall was removed by rongeur and the tumor forcibly pried out by stout bone rasps. It was attached to and extended into the infundibulum. The dura was exposed and absorbed over a large area. Some softened bone about the margin of the dehiscence was rongeured away, a light sprinkle of iodoform powder applied to the exposed dura and brain. The infundibulum was enlarged by means of a bone rasp, a drain tube inserted, the cavity was lightly packed with sterile gauze and the external wound completely closed.

Recovery with but slight scar was entirely uneventful.

The tumor was an osteoma, weight a little more than six hundred grains, with great density.

DISCUSSION.

DR. JOHN M. INGERSOLL, Cleveland: At the meeting last year I showed some radiographs of an osteoma of the frontal sinus in a boy fourteen years old, following a blow from a baseball. He has been under observation for three years. During the first year after the operation I was very hopeful, but the radiographs that I exhibited last year showed a recurrence and that the osteoma had grown back into the brain cavity so far that it was inoperable. The tumor grew originally from the infundibulum into the frontal sinus, just as it did in Dr. Barnhill's case. The general opinion is that the tendency of these growths to recur is very marked.

We have now under observation, at Lakeside Hospital, a man who has an exophthalmos, one eye being pushed downward and forward by an osteoma growing from the external part of the orbit. The x-ray taken two months ago, compared with one taken recently, shows that the osteoma is slowly increasing, but with the known tendency of these growths to recur rapidly, we have hesitated to operate.

DR. JOHN E. MACKENTY, New York City: In the service at the Manhattan Hospital, in another department, I was interested in an osteoma of the frontal bone. It involved the frontal sinus and extended back along the base of the brain, going through to the dura. The condition is pretty well recognized under the name of ivory osteoma of the frontal bone, and it is rather serious to operate on it. This man's was due to syphilis. He had evidence of syphilis at the time. I should like to ask Dr. Barnhill whether this girl's blood was examined for syphilis. The man subsequently died of meningitis. His tumor was not operable. The consensus of opinion is that when these tumors are very large, they are inoperable because the difficulty of getting them out entirely is so great.

DR. JOHN F. BARNHILL, closing: She was an only child. There was no evidence of hereditary syphilis, and I looked on her as a perfectly well girl except for this ivory-hard tumor. I should be greatly amazed if this should turn out to be a sarcoma. I am well aware that sarcoma is more common in this region than anything like one. I should be greatly astonished if it returned. When I pried it off, it snapped from the infundibular attachments with a crack such as would a piece of marble, and in sawing through it was so ivory like that it could be compared to a billiard ball. There was no suspicion on the part of anyone that it could be sarcoma, but I know the tricks of sarcoma so well that I would not say that it is impossible for it to have been one.

Report of a Case of Prolonged Intubation. EMIL MAYER, M. D., New York City.

A boy aged nine years had had diphtheria at the age of two, for which tracheotomy was done, resulting in a tracheal fistula, for which he was admitted to the hospital. Attempts to close by this plastic operation failed, with the result that a tracheotomy tube had to be inserted.

Stenosis of the larynx followed, which was treated by divulsion, with subsequent introduction of an intubation tube. This tube had to be removed under suspension and promptly reinserted at intervals for a period of five years, always under general anesthesia. Finally in April, 1918, the intubation tube was removed. A tracheotomy tube was inserted for a couple of days. This was removed, the wound closed, the patient breathing since through the natural passages. The writer concludes:

The special points of interest in this case are:

1. Persistent remaining of a tracheal fistula in spite of every faithful attempt at its closure.
2. A stenosis of the lower portion of the larynx due to contraction of the natural parts, and their consequent disuse.
3. The impossibility of intubating except under general anesthesia and under suspension.
4. Persistent collapse of the larynx as soon as extubated.
5. The prolonged wearing for five years of an intubation tube.
6. The ability to breathe through the natural passages after all these years, in spite of the loss of at least two anterior rings of the trachea.

To this happy outcome must be attributed, in great extent, the growth of the patient, who, from a little boy of nine, and four feet in height, is now nearly fifteen years old, and has attained a height of five feet five inches, with natural increase in size of all his organs, including the trachea and larynx.

DISCUSSION.

DR. HENRY L. SWAIN, New Haven: I should like to inquire as to the development of thyroid and cricoid cartilage, notwithstanding their disuse—do they grow in the normal way?

Answer: Yes.

DR. JOSEPH H. BRYAN, Washington: It must have taken long continued, patient work.

DR. THOMAS H. HALSTED, Syracuse: I hoped that Dr. Mayer would help me out on a case that is at present under my care. Three months ago I was called to see a child a year old which had had a mild laryngitis for several days. A general physician was in charge of the case. One night the dyspnea became worse, and I was called in. I found the child cyanosed and the dyspnea very great. Examination revealed nothing. I had the child sent to the hospital, and went there myself in my car, after telephoning for them to have the instruments ready for immediate intubation. The tube was put in immediately and a culture was made and found negative. Antitoxin was given on general principles. At the end of six days I removed the tube, but had to put it back immediately and make artificial respiration. We gave this child antitoxin during the first few days. The throat was examined repeatedly, but the culture was always negative. It has been three months now, and during this time I have extubated eight times and intubated nine times. I did

a direct laryngoscopy a month ago, and found nothing but an ashy appearance of the trachea, resembling a pseudomembrane. I did not do a bronchoscopy. We suspected the existence of a foreign body, and the child has been x-rayed several times, always without result. The child is perfectly well otherwise, and has gained in weight. It walks about and enjoys itself, and has no difficulty in swallowing, but I do not know how to get rid of the tube. The grandmother wants me to say that she believes that it was all due to teething. I do not know. The child has had one very slowly erupting tooth, one of the molars. It has been exceedingly painful. It has taken that tooth, which looked as if it were ready to erupt when the thing happened, until now to come through, and in the meanwhile a number of other teeth have erupted.

DR. CHARLES W. RICHARDSON, Washington: The case of Dr. Mayer's is a very interesting one. In former days, when I did a great many intubations, I occasionally met with some prolonged retention of the tube, but I think that Dr. Mayer has the record for long retention of the tube, and I wish to congratulate him on surmounting his various difficulties, especially after the loss of part of the cartilage.

May I ask whether he does not think that there was some regeneration of the cartilage later on, which caused the box of the larynx to stiffen up so that its firmness made it possible for him to eventually take out the tube and dispense with it entirely? That seems to me to have occurred in this case.

Regarding Dr. Halsted's case: Some few years ago I reported a series of cases of laryngitis hypertrophica subglottica acuta, and I should judge from what he describes that it was a case absolutely of the same character. Such is the usual history of these cases, as he describes and as I have seen them. They are usually very intractable with regard to the removal of the tube. They have in the past given me more trouble than the fewer retained tubes in diphtheritic cases, as you would naturally expect on account of the fact that the urinary trouble in these cases is subglottic in the cricoid region. Of course, when I took out the tube in these retained cases the stenosis immediately recurred or soon thereafter. It takes some time to get rid of the tube. I should not worry about it, but keep on in the same way he is now following. I have had cases last three or four months before eventually being able to dispense with the tube.

DR. HENRY L. SWAIN, New Haven: I presume that Dr. Halsted adopted the method of giving large doses of an anti-spasmodic before attempting to take the tube out. That is often successful. You can then remove it, when you would not be able to do so if the child was in possession of all his reflexes. I have had exactly the same kind of case as Dr. Halsted. In fact, there are three in the hospital now. One is just like this, and the others are retained tube cases. I have had trouble to get rid of them. I am sorry that I forgot Dr. Richardson's suggestion, and I think that this explains the situation perfectly. However, I did try to look upward in one of the cases. I was called in consultation and thought that it would be a good thing to do a tracheotomy and take the tube out. At the time of the operation and later, I tried to look in from below and see the condition of the larynx and find out what its interior contained, but without success. Some time after the tracheotomy this child had a sudden choking fit and died. We could not explain the matter, unless it was general uremia. The other children got well, but in these we had almost to stupefy the patient before we could get the tube out and have it stay out. In one case we had to keep the child under the narcotic for a whole twenty-four hours. These two children are all right now.

DR. EMIL MAYER, New York City, closing: Replying to Dr. Richardson's question, I would say that perhaps there was not so much reformation of cartilage, but that on account of the long continued presence of the tube all the tissues about the trachea became as hard as whipcords. So we had almost bony ridges on each side, which served to prevent the

collapse that surely would have occurred from the falling in of the soft spots.

Regarding the case that the chairman presented, it does seem that an acute laryngotracheitis of some k'nd was the original cause requiring intubation. Dr. Lynah, in a masterly paper on "Prolonged Wearng of Intubation Tubes," recently called attention to the immediate collapse that takes place in many instances when the tube has been removed, requiring a hasty reintubation. In fact, he tells of a case in a boy who was extubated and returned to the ward. The boy was under the impression that the tube was stil in situ. He was kept in the hospital for some time, and every time he misbehaved they threatened to remove the tube and he immediately behaved. The tube was not there, but he thought it was. I would suggest to Dr. Halsted to introduce a much larger intubation tube next time, and when he does extubate to have the patient under opiate, so that the general reflexes would cease, watching over him for that time of immediate danger and the likelihood of having to do a tracheotomy.

Regarding the question of Dr. Swain, as to whether the patient did not receive quantities of antispasmodcs, I would say that the boy was never extubated except under general anesthesia. He has been receiving an eighth of a grain of morphia, and then being completely anesthetized while the tube was removed for cleansing, and this latter had to be done in a hurry. He has been anesthetized over twenty-five times, and each time the anesthesia became more difficult because he was pretty well soaked with the drug. I hope that we shall not have to do any more for the little chap because he has been very brave. It certainly was to me a most interesting case, and one of the most important deductions that we can make is the wonderful tolerance of the larynx. The keeping of a tube in a larynx for a month's time seems to make no difference to him.

The Surgery of Laryngeal Malignancy. HUBERT ARROWSMITH, M. D., Brooklyn.

From the author's observations of MacKenty's work and his own recent experience, modeled very closely thereon, he is inclined to tentatively suggest the adoptions of Moure's antecedent tracheotomy, to accustom the lower air passages to the direct impact of air, which may lessen their immediate postoperative irritability and susceptibility; the tracheal opening to be made high, as Jackson has indicated, because that will not interfere with the later mobilization of the trachea. Otherwise the two step operation seems to offer no special advantage. This is the ideal field for the employment of oil-ether colonic anesthesia, as devised by Gwathmey. It makes the whole procedure infinitely easier for both patient and operator. Even if really painless under local anesthesia, such an ordeal produces an enormous apprehension which cannot but be detrimental to the patient, and the degree of infiltration of the tissues necessary to produce insensitiveness must interfere with their repair. With rectal anesthesia laryngeal spasm does not occur, bleeding is very much less, there is no tracheobronchial irritation from the directly inspired anesthetic, which very largely obviates the necessity for subsequent repeated applications of the suction apparatus—in itself an agent of some danger—and there is much less likelihood of postoperative vomiting, most undesirable under these conditions.

The laryngologist for every possible reason is the man who should do laryngeal surgery, both external and internal. If he saw all these patients at an early date, thyrotomy would more often be performed.

Laryngectomy cannot be repudiated on any such grounds as the mutilation, or the loss of voice. Laryngectomized patients are in no worse case than the blind, the deaf or the helplessly crippled. Many of them seem to get a fair amount of happiness out of the mere fact of existence, and not by any means incapable of self support. In judiciously chosen cases this operation offers a good deal more than a probability of clinical cure, and in most instances a definite retardation of the fatal ending.

Of two cases operated by the writer, one died six weeks later of pneu-

monia. The other is in good condition, now six months after operation, and at work.

A third case in whom only a tracheotomy was done, his final sufferings were so great that the author regrets that he did not give the patient "a fighting chance by as far-reaching a dissection as possible," rather than witness such sufferings as this man endured during the last six months of his life.

DISCUSSION.

DR. JOHN E. MACKENTY, New York City: The main trouble is that the cases come to us too late for any hope of permanent cure. Of twenty-three cases seen by me since last September, seventeen were inoperable, except in the way of alleviation. Only one case of the twenty-three was incipient. Now, that is a terrible commentary on the present condition of the diagnosis of this disease. There is a fault somewhere, and, as Dr. Arrowsmith says, I think it is largely with the general practitioner, who does not take notice of the early symptoms. Anyone of cancer age complaining of hoarseness which lasts for more than six weeks should be under observation. There is no question that the mortality has decreased during the last few years. Up to seven or eight years ago it was very high. At the present day, those taking this work up have a different experience, and find the operative mortality much lower. I think that care in the technic will reduce the operative mortality to a very small fraction.

Partial laryngectomy is a seldom required operation. I have added no cases of this procedure to the former record. I have seen none requiring it. Besides, hemilaryngectomy is more dangerous as an operative procedure than total laryngectomy. I think that a lot depends on getting the cases over the surgical end of it, on the postoperative treatment, more than we realize; it is the neglect of the small details following operation that produces the mortality.

I am wedded to the one stage operation, but I am not prejudiced, I hope, and see some reason now in the use of the high tracheotomy that does not in any way injure the trachea. I object to the other because it injures the trachea.

I have been impressed by Dr. Arrowsmith's exhibition of colonic anesthesia. Having seen it used in this type of operation, I am going to give it a thorough trial. I believe that in colonic anesthesia we have made an advance in this work, because it lessens the amount of hemorrhage and of blood getting into the trachea, which I consider very important in guarding the patient against pneumonia.

DR. CORNELIUS G. COAKLEY, New York City: It would seem to me that a one-stage operation is, in some cases, much to be preferred to a two stage operation. If the growth is small and you can afford to wait for the adjustment of the respiratory tract to the new method of breathing, all right; but if the case is likely to result in total laryngectomy the one stage operation is to be preferred.

DR. ROBERT CLYDE LYNCH, New Orleans: I have now six cases of intrinsic carcinoma of the larynx that I have operated on under suspension. Four of these patients are perfectly well at the present time. In the remotest case, it has been four years since the time of operation; in the most recent, about eight months. So far, there has been no recurrence, but I want to be sure that you understand that it is not good advice to give you at this time to operate on cases of intrinsic carcinoma of the larynx by that means. I am afraid that some men might think that this is an operation of choice and do it, and thus do more harm than good. In the second place, it would seem to me that as we progress along the line of study of operation for carcinoma of the larynx, the operations are going to divide themselves into two types—the thyroidotomy and the laryngectomy types. The cases requiring hemilaryngectomy will, very likely, give much better results under total laryngectomy. I have had seven cases with five cures and no immediate deaths, within ten days from the operation. The recurrence taking place within ten months in the shortest time. That is, the patients who got the least

benefit from the laryngectomy lived ten months, and in this particular case he was especially grateful for this added period to his life, in order to wind up his affairs so that he might leave them in shape for his family. Five of these patients are perfectly well up until the present time. Three of them are farmers who have been through three crops. That is, they have planted and harvested their crops three times, and their families have been provided for by that means. The others are clerks, and all are particularly happy and grateful. All can do without pad and pencil, in that they have been able to develop a type of speech that is understandable by their associates.

My procedure has always been by means of a preliminary tracheotomy, and at first low down, but now high up. I have not seen any cases in which the tumors have grown so large within two or three weeks following the tracheotomy as to make me feel that the tracheotomy itself had jeopardized the patient's welfare as far as his recovery was concerned. Giving always the ether vapor anesthesia, and giving the vapor through the tracheotomy tube has certainly facilitated every manipulation during the operative procedure. I now take away with the larynx the superficial thyroid muscles, the sternothyroid and sternohyoid, that group of muscles overlying the anterior face of the larynx,

I first started rectal feeding after the operation, but that has been supplanted by the use of the nasal tube or the introduction of the small catheter, just as one would do with a stomach tube, keeping the end of the catheter out of the stomach; that is important, in order to get away from the nausea or postfeeding vomiting. The tube should be inserted down to the neck, so that the esophagus may take care of the swallowing to the stomach.

The method of the care of the trachea, to me, has seemed very important. I pare the trachea and larynx, and attempt to separate at one point the trachea from the esophagus, and then I put in a tape, so that I may hold the trachea up until it is bent in that fashion. When things are ready I cut the trachea from above down, and the only bleeding that occurs is from the mucous membrane of the trachea. Before the trachea is cut a heavy silk suture is put in and held by an assistant. This prevents any blood from going down into the trachea. The anesthesia is carried on through a very small tracheotomy tube, which lies in the opening, and is also under the care of the assistant, who steadies the trachea. He has nothing to do but be sure that nothing enters the trachea. I do not know whether that is what keeps us from pneumonia or not, but we had no postoperative disturbance, and the remarkable gain in weight and the comfort that these people enjoy after the removal of the mass make it well worth while. It does seem to me that laryngectomy is not nearly so bad a thing for the patient as one would gather from reading the older articles on these subjects.

DR. HARMON SMITH, New York City: The reader of the paper cited a report of a case made by me. Last week I saw the woman. Her voice has returned, and she has gained in weight, although that was not necessary, as she weighed two hundred pounds to begin with. I believe that it was of low grade malignancy, of a papilloma carcinomatous variety.

DR. D. BRYSON DELAVAN, New York City: Yesterday morning I exhibited to a number of members of the society a patient who had been operated on by a friend of mine in New York City twenty-two years ago, two-thirds of the larynx being removed, and he is perfectly well today. That is one of the few cases followed and the end results studied.

DR. HUBERT ARROWSMITH, Brooklyn, closing: The plea I make is one of the utmost importance. If we are going to reach conclusions we want to know what becomes of the patient. Perhaps we do not all realize that our distinguished honorary president, Dr. Solis Cohen, was the originator of this method of handling the stump of the trachea, an invaluable step in the after treatment of laryngectomy, and I think that he was the first to do a laryngectomy in America.

DR. J. SOLIS COHEN, Philadelphia: I was not the first to do a laryngectomy, but the first to report the case.

A Carcinoma of the Epiglottis and Root of the Tongue Removed by the Simpson Radium Needles, With Description of a Needle-Placing Instrument. OTTO T. FREER, M. D., Chicago.

Dr. Frank Edward Simpson of Chicago, in 1914, devised short, hollow needles one and one-sixteenth of an inch long and one-sixteenth of an inch thick, made of steel and platinum plated with gold, the cavity of the needle has been screwed down upon its hollow shank. The wall of which is sealed within the needle after the detachable eye portion of the needle has been screwd down upon its hollow shank. The wall of the hollow needle is three-tenths of a millimeter thick—thick enough to filter out the irritating alpha and softer beta rays, while permitting the hard beta and gamma rays to pass freely through the wall of the needle.

The needles are stout enough to endure the firm grasp of a needle holder for their introduction into the tissues.

With several Simpson needles the effective so-called cross-firing of radium rays may be produced—that is, instead of the radium rays proceeding from a single source in the center of a growth it is easy to place a number of needles at its periphery as well as in the center, so that not only is the growth evenly influenced by multiple radiation, but the apparently healthy zone about the tumor is deeply penetrated by the rays, so helping to prevent a local return of the growth.

A valuable quality of the needles is their comparatively easy insertion, so that only occasionally, where a tumor is tough and resistant, is it necessary to place them in a preliminary knife cut for as a rule they may be directly thrust into the growth.

It is generally agreed that malignant tumors should be destroyed at one sitting by one very large dose of radium. This is not only done in order to minimize the danger of metastases risked by waiting for the effect of lesser doses at intervals, but it is experience that the effect of a single large dose is proportionately greater than that of the sum of smaller ones that equal it in quantity. It has also been found that a tumor is less influenced by later doses than by the first one, a species of tolerance being established for radium. The demand for a single completely effective large dose of radium rays is filled by leaving the Simpson needles in place for from nine to twelve hours. Their officient screening prevents the undesirable integumental burns that were so common before it became known that the soft beta rays and the alpha rays must be filtered out.

The difficulty in accurately inserting the needles with forceps in this case, the roughening of the surface of the costly needle by the blades and the annoyance caused by the dragging thread that trailed the needle, led the writer to construct a needle placer for inserting the needles, a device which in the case of a carcinoma of the laryngopharynx just treated has permitted their exact introduction into the flesh with an accuracy and ease that, he thinks, will make it possible to needle even intrinsic carcinoms of the larynx by the indirect, mirror method of laryngoscopy, a method so much less distressing to the patient than direct or suspension laryngoscopy.

Observations on Pneumococcus Infection of Nasal Accessory Sinuses. CORNELIUS G. COAKLEY, M. D., New York.

One hundred and eight-eight cases were observed. The acute ones with the history of a duration of one month or less numbered one hundred and nine. The remainder were chronic.

Pneumococci were present in forty-four per cent of the acute cases, and in most of these they were the sole organism. In the chronic cases this organism was found in but thirteen per cent.

These results seem to warrant the inference that in acute inflammations probably half the cases might be due to auto-infection, while the other half were due to infection from some outside source.

In the chronic cases the larger number were accompanied by autoinfecting organisms.

The author records a case of pneumococcus tonsillitis followed at an interval of two weeks with a pneumococcus infection of the left antrum.

In the second case both antra were successively involved, one at a later period than the other, with a pneumococcus in each instance.

The third case had beginning infection in the larynx and trachea, secondarily involving his antrum, with pneumococci.

The fourth case had a bilateral maxillary sinuitis; there was a pure culture of the pneumococcus in both. Signs of consolidation were found at the base of the right lung next day, and antipneumococcus serum was administered, followed by a chill, rising temperature to 106°, and an immediate drop i temperature with pneumococcus in his sputum, without any further attention to his antra, as the patient was too ill o be treated. Spontaneous recovery followed.

The writer asks what role the serum played in curing his maxilliary sinuitis?

The fifth case recorded was the wife of the preceding patient, with pure culture of pneumococcus from the discharge, evidently following infection from her husband.

The sixth case was one of an acute otitis with pure culture of the pneumococcus arising from an infection of the same character in the lert antrum.

From a study of this series of cases the writer feels justified in drawing the two following conclusions:

First. Pneumococcus infection of the nose and its accessory sinuses does not in any large percentage of cases result in a pneumococcic infection of the lungs. Only one of our cases developed pneumonia.

Second.—There would seem to be direct evidence that in one of the cases the infection, pneumococcus I, was transferred from husband to wife.

We hold that most severe acute rhinitis attacks are the result of infection, either with autogenous or foreign bacteria or viruses. The presence of pneumococcus rhinitis and sinusitis during the stage of profuse secretion, accompanied by coughing and sneezing, must be a fruitful source of disseminating pneumococci, some of which may only invade the upper air passages of the victims of the infection, while in other patients, finding a suitable soil in the deeper air passages produce a pneumonia. There is abundant evidence that pneumonia is infective, and may not one source of infection be in these pneumococci head colds?

DISCUSSION.

DR. CLEMENT F. THEISEN, Albany: Some time ago I published a paper on "Pneumococcus Infection of the Nasal Cavities in Children," which was based on a small epidemic that I witnessed in the Child's Hospital in Albany. In these cases the children ranged from four to fourteen years of age, and numbered not over half a dozen. We obtained in all the cases the pneumococcus from the nasal secretion. In two cases there was a marked exophthalmos with serious ethmoidal and frontal involvement. These two children were operated on and made good recoveries. We had one death, in a child of four, with sinus involvement and a high temperature. Pneumococcic serum was administered without effect. In all cases there was profuse nasal discharge, very high temperature and very serious involvement of the cervical lymphatics, and the pneumococcus was obtained in pure culture from the nasal secretion.

DR. HENRY L. SWAIN, New Haven: I had three cases this winter in which the pneumococcus Type I was found, and in which the immediate onset of pneumonia necessitated the calling in of an internist, in order that the necessary attention might be given to the chest condition, so that I could not follow the case for a number of days. Two of the three cases recovered and one did not. The sinus condition absolutely cleared up within three days after the administration of the pneumococcic serum in those that recovered.

DR. CORNELIUS G. COAKLEY, New York City, closing: The only case in which the question of giving pneumococcic serum of Type I was the one in which the serum was very efficacious. I was surprised to find that from such a severe attack the patient recovered from his sinusitis without further treatment. Of course, they might have recovered without it. Some recover without treatment.

EDGAR MILLER HOLMES, M. D.

IN MEMORIAM

The many friends of Dr. Edgar Miller Holmes—personal friends as well as those who knew him only by reputation—will be shocked to learn that he was drowned on September 19, 1918, by the capsizing of a canoe which he and his fifteen-year-old son were paddling. Father and son held to the craft for a time but Dr. Holmes finally lost his grip and sank. The boy made a valiant effort to save his father, but without avail, and was himself rescued when he was about to sink from exhaustion.

Dr. Holmes was born at Middletown, Conn., May 25, 1868. His father was a cousin of Oliver Wendell Holmes.

As a young man, Dr. Holmes taught in the public schools of Connecticut for two years and also gave private lessons in music. He later studied dentistry and practiced that branch for five years. But he forsook that to take up the study of medicine and was graduated from the Harvard Medical School in 1895.

As a specialist in otolaryngology, to which branch he early devoted himself, Dr. Holmes had made a wide reputation. He was a frequent contributor to the Laryngoscope and to other special journals, his scientific contributions being prolific. He also devised many instruments, chief among them the naso-pharyngoscope which bears his name.

Dr. Holmes was head of the ear, nose and throat department of the Boston City Hospital; ear, nose and throat surgeon to St. Elizabeth's Hospital; consulting surgeon to the Forsyth Dental Infirmary; aural surgeon to the Boston Dispensary, and an instructor in the Tufts Medical School and the Harvard Post-Graduate Medical School.

He was a member of the American Medical Association, the Massachusetts Medical Society, the New England Otological and Laryngological Society, the American College of Surgeons, the

American Academy of Ophthalmology and Otolaryngology, the American Laryngological, Rhinological and Otological Society, and the American Otological Society.

His loss will be felt by his co-workers as keenly as by his family, to whom heartfelt condolences are extended in their bereavement.

ED.

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